

**Illinois Water Resources Center
Annual Technical Report
FY 2011**

Introduction

The Illinois Water Resources Center seeks to develop solutions to water challenges of importance to Illinois, the Midwest and the nation. The Center's mission is to promote research, education, and information transfer towards that objective.

STAFFING The Illinois Water Resource Center staff include: Brian Miller, director Lisa Merrifield, assistant director Carla Blue, program specialist

Research Program Introduction

IWRC annually funds graduate student research on projects related to Illinois Water Resource issues. With limited funding, we fund directly funding graduate students to be efficient and in keeping with the Water Resource Center mission.

Characterization of Critical Shear Stresses and Bank Material Erosion Rates on Gravelly Stream Banks through Development of a New In Situ Experimental Apparatus

Basic Information

Title:	Characterization of Critical Shear Stresses and Bank Material Erosion Rates on Gravelly Stream Banks through Development of a New In Situ Experimental Apparatus
Project Number:	2011IL222B
Start Date:	3/1/2011
End Date:	2/28/2013
Funding Source:	104B
Congressional District:	15th
Research Category:	Engineering
Focus Category:	Models, None, None
Descriptors:	
Principal Investigators:	Marcelo Horacio Garcia, David Waterman

Publications

There are no publications.

Work on this project was delayed. Researchers will submit a final report in August, which will better capture the results of their efforts. We will include the report in the 2012 report.

Determining the Fate and Toxicity of Polycyclic Aromatic Hydrocarbons Associated with Coal-Tar and Other Carbonaceous Material Particles in Urban Lakes

Basic Information

Title:	Determining the Fate and Toxicity of Polycyclic Aromatic Hydrocarbons Associated with Coal-Tar and Other Carbonaceous Material Particles in Urban Lakes
Project Number:	2011IL239G
Start Date:	8/1/2011
End Date:	7/31/2014
Funding Source:	104G
Congressional District:	15 IL
Research Category:	Water Quality
Focus Category:	Non Point Pollution, Sediments, Surface Water
Descriptors:	None
Principal Investigators:	Charles J. Werth, Michael Jacob Plewa

Publications

There are no publications.

IWRC ANNUAL REPORT

Project Title:

Determining the Fate and Toxicity of Polycyclic Aromatic Hydrocarbons Associated with Coal-Tar and Other Carbonaceous Material Particles in Urban Lakes

Project PIs and Contact Information:

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Problem and Research Objectives:

Particle associated contaminants (PACs) have resulted in the impairment of thousands of streams, lakes, and reservoirs; PACs were responsible for fish-consumption advisories for 39 percent of total river mileage and 43 percent of total lake acreage in the United States in 2008. Results from recent water quality surveys indicate that metal, polychlorinated biphenyl, and DDT concentrations in freshwater sediments have generally decreased since their peak in the mid 1970's, consistent with their use and regulatory histories. However, total concentrations of polycyclic aromatic hydrocarbons (SPAHs) have increased, and generally with increasing urbanization. PAHs are toxic to aquatic life, and many are probable or suspected carcinogens. This is of special concern because many urban surface waters are used for human recreation (e.g., fishing, swimming) and/or drinking water.

Sources of particle-associated PAHs in urban lake sediments are located both within and outside the watershed. They include point (e.g., industrial emissions) and nonpoint (e.g., automobiles) combustion sources, asphalt from roads and parking lots, vulcanized rubber products such as automobile tires, and coal-tar and asphalt based sealcoats on parking lots and driveway pavement and roofs. Results from a number of our recent studies indicate that coal-tar pavement sealcoat is fluvially transported into urban streams and lakes with runoff, and can be the dominant source of PAHs in urban streams and lakes.

The overall goal of this study is to determine the fate and toxicity of PAHs associated with coal-tar particles in urban lake sediments. The specific objectives of this study are listed below.

- 1) Determine the sorption equilibrium and desorption kinetics of PAHs in coal-tar and other carbonaceous material particles that comprise urban lake sediments. We hypothesize that sorption capacities are low and release rates are high for PAHs in coal-tar and other less condensed carbonaceous materials (CMs) compared to highly condensed CMs like black carbon char and soot.

- 2) Determine PAH losses and redistribution associated with coal-tar particles in urban lake sediments. We hypothesize that lower molecular weight PAHs are released from coal-tar particles soon after burial (weeks to months) and taken up by more strongly sorbing black carbon, and that higher molecular weight PAHs are only lost to black carbon over much longer time scales (i.e., years) as phenolic and heterocyclic compounds that comprise coal-tar degrade. As a result, we hypothesize that PAHs are largely conserved in lake sediments and are not significantly released to the water column, and that sediment pore-water concentrations of PAHs decrease with aging.
- 3) Determine the toxicity of PAHs associated with coal-tar and other carbonaceous material particles in urban lake sediments. We hypothesize that toxicity of pore water in sediments decreases with time as PAHs and other organic pollutants redistribute from less strongly sorbing CMs like coal-tar to more strongly sorbing black carbon, and as less recalcitrant pollutants are biologically degraded over time. Such information is important because these lakes are sources of recreation and/or drinking water for large populations, and understanding coal-tar contributions to toxicity is an important step in protecting the environment and public health.

Methodology:

The proposed work combines bench scale laboratory experiments, field experiments, and laboratory analysis of field samples. It is divided into four tasks that cover 1) lake core retrieval, analysis, treatment, and in situ placement, 2) sorption isotherm and desorption kinetic profile measurement, 3) PAH and CM analysis of in situ cores, and 4) toxicity analysis of in situ cores.

All cores will be taken from Lake in the Hills in the Village of Lake in the Hills, a suburb of Chicago, Ill. A set of cores will be used for sorption isotherm and desorption kinetic profile measurements in task 2, and another set will be spiked with coal tar and other carbonaceous materials spiked with deuterated PAHs, and then placed back into Lake in the Hills.

Sorption isotherm measurements will be performed to determine the affinity of PAHs for different carbonaceous materials, including asphalt, coal tar, soot, and charcoal. Sorption kinetic profiles measurements will be performed to determine the time scales that PAHs transfer between carbonaceous materials in lake sediments.

Spiked cores placed back in Lake in the Hills will be retrieved after 6 months, 1 year, and 2 years, and then analyzed to determine deuterated and non-deuterated PAH concentrations, and concentrations of PAHs on individual CM particles. Measurement of deuterated PAH concentrations will allow us to determine if PAHs associated with each type of CM were lost to the watershed, transferred to another CM, or degraded over time.

The toxicity of extracts from the original cores, and spiked cores retrieved at different time intervals, will be determined.

Principal Finding and Significance:

Due to a delay in hiring graduate students, project activities are only starting in the summer of 2012. As a result, there are no findings to report.

Notable Achievements:

Due to a delay in hiring graduate students, project activities are only starting in the summer of 2012. As a result, there are no achievements to report.

Students supported with funding:

This project was funded last year (2011) after the graduate student recruiting season ended. Therefore, graduate students were not recruited to work on the project until the summer of 2012. This summer two graduate students will start work on the project. The primary graduate student is Tory Boyd. She obtained her MS degree at Illinois, and the work in this proposal represents the bulk of her PhD thesis. The other graduate student is Lang Zhang. He is a new graduate student who will work hourly this project during the summer of 2012. He will assist Tory Boyd in her efforts.

Publications and presentations:

Due to a delay in hiring graduate students, project activities are only starting in the summer of 2012. As a result, there are no publications or presentations to report.

Information Transfer Program Introduction

IWRC strives to transfer information about Water Resources to Illinois practitioners and the public. Our primary mechanisms for this are through conferences and through our website and electronic communications with constituents.

Transferring Water Research to the People of Illinois

Basic Information

Title:	Transferring Water Research to the People of Illinois
Project Number:	2011IL223B
Start Date:	3/1/2011
End Date:	2/28/2012
Funding Source:	104B
Congressional District:	15th
Research Category:	Not Applicable
Focus Category:	None, None, None
Descriptors:	None
Principal Investigators:	Lisa Merrifield, Carla Blue

Publication

1. Blue, Carla, ed., 2011, 2011 Governors Conference on Management of the Illinois River Abstract Book, Springfield, IL, 68p.

Transferring Water Resources Information to the People of Illinois

The Illinois Water Resources Center makes strides to communicate water resources information to the public via a number of avenues. Below are our approaches and the actions taken in 2011 towards this goal.

1. Publish and electronic newsletter

Our newsletter has evolved over time and with personnel. Ten years ago we printed thousands of copies and mailed them to a mailing list. This was an expensive and labor intensive venture. With flat funding, several years ago, we determined a better use of funds would be to send an electronic newsletter to constituents and researchers. In 2011, we decided that rather than an annual newsletter, more frequent, more concise emails were a better option given our staffing level and resources. As such, we communicated with the IWRC constituents 5 times in 2011. Communications included information about our call for proposals, the Illinois Water Conference and the Governor's Conference on the Illinois River, and with relevant position announcements. Based on responses to all issues, the leaner, more targeted emails seem to be a better approach for our purposes.

2. Plan the Illinois Water Conference to be held October 2012

The planning committee for Water 2012 convened in late 2011. The group of a dozen water resource professionals from universities, government agencies, consulting groups, and local resource organizations met by phone and crafted an plan for the 2012 conference.

The conference will be held on September 24 and 25 in Champaign, Illinois. Historically we have met at a local hotel, but in an attempt to save costs and attract more University faculty and students, in 2012 we will hold the conference on the University of Illinois Campus. A call for sessions and papers was issued in February 2011.

3. Co-Sponsor and help plan the Governor's Conference on the Illinois River

IWRC personnel coordinated the preconference abstract book for the conference. This included working with conference organizers to gather materials, layout and design of the book, communications with printers and editing final content. The abstract book is included attached to the end of this document.

4. Maintain the IWRC website for information transfer

The IWRC website is updated regularly and is available at <http://web.extension.illinois.edu/iwrc/>.

5. Share water resources information with students and the general public

In 2011, IWRC staff members began a fact finding campaign to get better acquainted with other water resource entities on the University of Illinois campus. In December, we met with the local USGS group to talk about common interests. Through that process, we have helped USGS with internship and other projects working with University of Illinois researchers.

13th Biennial Governor's Conference
on the Management of the
Illinois River System

**Abstracts and
Speaker Information**

The Illinois River: A National Opportunity
October 4–6, 2011
Hotel Père Marquette, Peoria, Illinois



www.conferences.illinois.edu/ilriver

Welcome

Dear 2011 Conference Participants:

On behalf of the Planning Committee, we want to welcome you to the 2011 Governor's Conference on the Management of the Illinois River System! This thirteenth biennial conference continues a tradition begun in 1987, when then Governor James R. Thompson joined with a group of concerned citizens to focus attention on the growing problems of erosion and sedimentation along the Illinois River and its tributaries. They believed bringing various state and federal organizations together in a common forum would help begin the process of discovering solutions to these problems. This biennial conference held in Peoria, continues to grow, benefiting from the strong support of Governor Pat Quinn. This year's conference theme is "The Illinois River: A National Opportunity".

The 2011 Planning Committee has developed an agenda designed to continue the tradition of bringing the latest in developments and management techniques to those working towards protecting the Illinois River System for future generations. For the past two years, we have been meeting and making plans to ensure this year's conference is even better than ever.

What can you expect?

- Comments on the Illinois River System by Lt. Governor Sheila Simon and Governor Pat Quinn (invited) presented at the quarterly meeting of the Illinois River Coordinating Council (IRCC) held on Tuesday evening October 4th. The IRCC meeting includes a Public Forum for Discussion, Comments, and Questions
- Illinois River Watershed Conservation Tour on Tuesday, October 4th
- RiverWatch Symposium also on Tuesday, October 4th
- High-profile keynote speakers including Robert Hirsch to discuss national opportunities and River Management: Making Informed Choices in a Changing Environment, and John Rogner, From Carp to CREP: Challenges and Opportunities for the Illinois River
- Twelve concurrent sessions allowing you to select from a wide array of contemporary topics of greatest interest to you
- Integrated Digital Technology Open House where participants can receive personalized technical assistance
- Informative & educational exhibits
- Delicious riverfront meal and get-together with SPECIAL treats and entertainment on the evening of Wednesday, October 5th
- Great opportunity for networking with other water resource colleagues!
- SURPRISES!

On behalf of our Planning Committee, we hope that you will find this conference to be exciting, informative, stimulating and enjoyable!

Sincerely,



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Introduction and History of Conference

In 1985, a group of concerned scientists, citizens and river activists began to focus new attention on the growing problems of sedimentation and erosion along the Illinois River and its tributaries. Collectively, this group of individuals formed the nucleus for the planning committee for the First Governor's Conference on the Management of the Illinois River System, which was held at the Hotel Pere Marquette, Peoria, IL on April 1 - 3, 1987. Governor James R. Thompson believed bringing various state and federal agencies and organizations together in a common forum would help begin the process of discovering solutions to these problems.

Since 1987, this conference has continued to be held on a biennial basis in Peoria - midway on the Illinois River between Chicago and Grafton. Governors Jim Edgar, George Ryan, Rod Blagojevich, and Pat Quinn have continued this strong tradition by providing a Governor's designation to this conference, thus demonstrating the high priority being placed upon our natural resources.

Over the past twenty-four years, the Governor's Conferences on the Management of the Illinois River System served as an important forum to bring together local, state, and federal leaders to create awareness of the issues of soil erosion and sedimentation, identify important river research initiatives, develop working coalitions, apply conservation practices to the watershed, prepare new river and watershed legislation, and provide for state and federal funding to address the issues of the Illinois River System.

The foundations for the following programs can be directly attributed to successful interagency and multi-disciplinary cooperation, fostered at the Governor's Illinois River Conferences and subsequently implemented at the local, state and federal level:

- Development of low-cost Streambank Stabilization Methods with state and federal funding
- Formation and development of numerous watershed treatment programs for landowners, funded through U.S. Department of Agriculture, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Illinois Department of Agriculture, Illinois Department of Natural Resources, Illinois Environmental Protection Agency and local Soil and Water Conservation Districts; (Examples include: USFWS Partners for Wildlife and Fish Program has assisted landowners in restoring over 6,000 acres of habitat along the Illinois River; U.S. Army Corps of Engineers Habitat Restoration and Enhancement Projects completed at Swan Lake, Banner Marsh, Lake Chautauqua, Stump Lake, and Peoria Lake Islands; USFWS established the 11,122 acre Emiquon National Wildlife Refuge of which the Service now owns 2,114 acres and The Nature Conservancy owns 7,063 acres; IDNR completed land acquisition efforts at the Double T Fish and Wildlife Area, the Duck Ranch at Henry, IL; The Wetland Initiative's 2,500 acre Hennepin Hopper restoration effort; The Audubon Society's purchase of Plum Island; and Ducks Unlimited Spring Lake acquisition and restoration.)
- Formation and operation of the Illinois River Coordinating Council
- Development of the Integrated Management Plan for the Illinois River System
- Illinois Conservation 2000 Programs and Funding
- Illinois River Conservation Reserve Enhancement Program“ led by efforts of U.S. Congressman Ray LaHood - 123,000 acres presently enrolled
- Illinois Rivers 2020 Initiative
- Development of the Stream and Watershed Assessment and Restoration Program (SWARP).
- “Mud to Parks” Dredging & Re-Use of Sediment from the Illinois River
- Island construction on the Illinois River utilizing dredging sediment.

Introduction and History of Conference

The conference attendance has grown from 150 to over 400 participants who represent a diversity of backgrounds, agencies, organizations, and communities. Each conference planning committee presented an agenda designed to continue the tradition of bringing the latest in developments and management techniques to those working towards protecting the Illinois River System for future generations. Over sixty local, state, and federal agencies and organizations currently serve as Conference Co-Sponsors and a number are now providing financial support of the conference. The following four individuals have faithfully served on all twelve of the State Conference Planning Committees by sharing their knowledge and expertise: Bob Frazee, University of Illinois Extension; Steve Havera, Illinois Natural History Survey; Gary Clark Illinois Dept. of Natural Resources; and Rick Mollahan, Illinois Dept. of Natural Resources and Illinois Environmental Protection Agency. Glenn Stout, University of Illinois Water Resources Center, provided leadership by organizing the First Governor's Conference on the Management of the Illinois River System and serving as the first Conference Chair. Subsequent conference leadership has been provided by the following people:

1989: Bob Frazee, University of Illinois Extension, Chair.

1991 – 1995: Bob Frazee, University of Illinois Extension and Roberta Parks, Peoria Area Chamber of Commerce, Co-Chairs.

1997 – 2003: Bob Frazee, University of Illinois Extension and Steve Havera, Illinois Natural History Survey, Co-Chairs

2005 – 2007: Bob Frazee, University of Illinois Extension and Kim St. John, Natural Resources Conservation Service-Prairie Rivers Resource, Conservation and Development, Co-Chairs.

2009: Kim St John, USDA-Natural Resources Conservation Service and William P. White, University of Illinois, Institute of Natural Resource Sustainability, Illinois State Water Survey, Co-Chairs.

2011: William P. White, University of Illinois, Prairie Research Institute, Illinois State Water Survey; Chris Davis, Illinois Environmental Protection Agency; and Rick Mollahan, Illinois Department of Natural Resources, Co-Chairs.

*Original compilation by: Bob Frazee, University of Illinois Natural Resources Educator, 727 Sabrina Drive, East Peoria, IL 61611; Ph. (309) 694-7501, Ext. 226; E-mail: rfrazee@uiuc.edu, April 2007.

*Updated by: William White, University of Illinois, Prairie Research Institute, Illinois State Water Survey, 115 S.W. Adams St., Room 321, P.O. Box 697, Peoria, IL 61652; Ph. (309) 838-4299; E-mail: bwhitel@illinois.edu, June, 2011.

Conference Proceedings

Conference Proceedings have been compiled by the University of Illinois Water Resources Center for each of the biennial Illinois River Conferences. The Illinois Rivers Decision Support System, affiliated with the Illinois State Water Survey at Champaign-Urbana, Illinois has a section of their webpage devoted to providing the Conference Proceedings for each of the past eleven conferences at <http://ilrdss.sws.uiuc.edu/>

Included for each conference is the conference agenda, topics, speakers, printed presentations, conservation tours, exhibits, public forums, and related activities. Listed below are the files for the first twelve Governor's Conferences on the Management of the Illinois River System.

File 1 1987 Governor's Conference on the Management of the Illinois River System, April 1 - 3, 1987, Hotel Pèrè Marquette, Peoria, IL

File 2 1989 Governor's Conference on the Management of the Illinois River System, October 3 - 4, 1989, Hotel Pèrè Marquette, Peoria, IL

File 3 1991 Governor's Conference on the Management of the Illinois River System, October 22 - 23, 1991, Hotel Pèrè Marquette, Peoria, IL

File 4 1993 Governor's Conference on the Management of the Illinois River System, September 21 - 22, 1993, Hotel Pèrè Marquette, Peoria, IL

File 5 1995 Governor's Conference on the Management of the Illinois River System, October 10 - 11, 1995, Hotel Pèrè Marquette, Peoria, IL

File 6 1997 Governor's Conference on the Management of the Illinois River System, October 7 - 9, 1997, Holiday Inn City Centre, Peoria, IL

File 7 1999 Governor's Conference on the Management of the Illinois River System, October 5 - 7, 1999, Holiday Inn City Centre, Peoria, IL

File 8 2001 Governor's Conference on the Management of the Illinois River System, October 2 - 4, 2001, Holiday Inn City Centre, Peoria, IL

File 9 2003 Governor's Conference on the Management of the Illinois River System, October 7 - 9, 2003, Holiday Inn City Centre, Peoria, IL

File 10 2005 Governor's Conference on the Management of the Illinois River System, October 4 - 6, 2005, Holiday Inn City Centre, Peoria, IL

File 11 2007 Governor's Conference on the Management of the Illinois River System, October 2 - 4, 2007, Holiday Inn City Center, Peoria, IL

File 12 2009 Governor's Conference on the Management of the Illinois River System, October 20 - 22, 2009, Hotel Pèrè Marquette, Peoria, IL

File 13 2011 Proceedings from the 2011 Governor's Conference on the Management of the Illinois River System will be available to download from the Illinois Rivers Decision Support System website <http://ilrdss.sws.uiuc.edu/> as a PDF file by the end of February 2012.

STATE OF ILLINOIS

EXECUTIVE DEPARTMENT

Proclamation

WHEREAS, the Illinois River is a critical component of our state's geography, history, economy, and ecology; and,

WHEREAS, many attributes are threatened as a result of the cumulative effects of human activities that have significantly altered the Illinois River System; and

WHEREAS, the state of Illinois is embracing an integrated approach to large river management and is working in a coordinated and continuous manner for the Illinois River; and,

WHEREAS, implementation of the Illinois River Coordinating Council, Conservation Reserve Enhancement Program, Partners for Conservation Program, Illinois Rivers 2020, Open Lands Trust Fund, Mud to Parks capital program, Landowner Incentive Program, Illinois Fish and Wildlife Action Plan, Illinois Conservation Stewardship Program, Illinois Conservation Climate Initiative, Stream and Watershed Assessment and Restoration Program and the Farm Bill Conservation Title are important milestones in efforts to protect the resources of the Illinois River; and

WHEREAS, the theme of the 2011 Conference on the Management of the Illinois River System is focused on strengthening "National Opportunities"; and,

WHEREAS, the conference will be taking place October 4-6, 2011 at the Hotel Père Marquette in Peoria, Illinois;

THEREFORE, I, Pat Quinn, Governor of the State of Illinois, do hereby proclaim October 2011 as **ILLINOIS RIVER MANAGEMENT MONTH**, and encourage all citizens to recognize the economic, recreational, social, and environmental benefits of conserving and managing to properly utilize and sustain the resources of the Illinois River System.

In Witness Whereof, I have hereunto set my hand and caused the Great Seal of the State of Illinois to be affixed.



Done at the Capitol, in the City of Springfield,
 this EIGHTH day of APRIL,
 in the Year of Our Lord two thousand and
ELEVEN, and of the State of Illinois
 the one hundred and NINETY-THIRD

Debbie White
 SECRETARY OF STATE

Pat Quinn
 GOVERNOR

Conference Overview

Tuesday, October 4, 2011		Wednesday, October 5, 2011		Thursday, October 6, 2011	
Morning Sessions	8:15–9:00 AM Conservation Bus Tour Check-in RiverWatch Symposium Registration Continental Breakfast Upper Hotel Lobby	7:45 AM–4:30 PM Registration / Check In Upper Hotel Lobby	7:45–8:45 AM Exhibits / Breakfast Marquette Ballroom North	7:45 AM–12:00 Noon Registration / Check-in Upper Hotel Lobby	7:45–8:30 AM Exhibits / Breakfast Marquette Ballroom North
	9:00 AM–4:15 PM Conservation Tour	9:00 AM–3:00 PM RiverWatch Symposium Marquette Ballroom South	8:45–9:00 AM Opening Remarks Marquette Ballroom South	8:30–9:45 AM Concurrent Sessions	
Afternoon Sessions		9:00–9:45 AM Plenary Session One: River Management: Making Informed Choices in a Changing Environment Marquette Ballroom South	9:00–9:45 AM Plenary Session One: River Management: Making Informed Choices in a Changing Environment Marquette Ballroom South	A-3 Illinois River History and Chicago River Diversion Study Marquette Ballroom South	C-3 Monitoring I: Nutrients LaSalle
		9:45–10:15 AM Break/Visit Exhibits Marquette Ballroom North	9:45–10:15 AM Break/Visit Exhibits Marquette Ballroom North	B-3 Nutrient Management in Rural Landscapes Cheminee	C-4 Monitoring II: Sediment LaSalle
		10:15–11:15 AM Plenary Session Two: Council on Environmental Quality Perspective on Asian Carp Marquette Ballroom South	10:15–11:15 AM Plenary Session Two: Council on Environmental Quality Perspective on Asian Carp Marquette Ballroom South	10:15–11:30 AM Concurrent Sessions	
Evening	1:00–6:15 PM Exhibit Set Up Marquette Ballroom North Conference Registration Upper Hotel Lobby	1:15–4:15 PM Interactive Digital Technologies Open House Illinois Room	1:15–2:30 PM Concurrent Sessions	A-4 Social Factors for Water Resource Management Marquette Ballroom South	1:15–1:30 PM Closing Comments Cotillion Ballroom
		1:15–2:30 PM Concurrent Sessions	A-1 The Turbulent Present and Future of Commercial Navigation on the Illinois Waterway Marquette Ballroom South	B-4 Stormwater Management in Urban Landscapes Cheminee	11:45 AM–1:15 PM Lunch / Feature Presentation Cotillion Ballroom
		2:30–3:00 PM Break / Visit Exhibits Marquette Ballroom North	2:30–3:00 PM Break / Visit Exhibits Marquette Ballroom North	B-1 Federal Ecosystem Restoration Programs: Opportunities to Enhance National Recognition Cheminee	
		3:00–4:30 PM Concurrent Sessions	3:00–4:30 PM Concurrent Sessions	C-1 Natural Resources: Challenges and Solutions LaSalle	
	6:00–6:30 PM Illinois River Coordinating Council Reception Cotillion Ballroom	6:30–8:00 PM Illinois River Coordinating Council Quarterly Meeting and Public Forum Cotillion Ballroom	5:30–8:00 PM Evening Dinner Gathering and Networking Contemporary Art Center of Peoria		

2011 Governor's Conference on the Management of the Illinois River System "The Illinois River: A National Opportunity"

Tuesday, October 4, 2011

- 8:15–9:00 AM | **Registration and Continental Breakfast** | Upper Hotel Lobby
9:00 AM–3:00 PM | **RiverWatch Symposium** | Marquette Ballroom South
9:00 AM–4:15 PM | **Illinois River Watershed Conservation Tour**
1:00–6:15 PM | **Conference Registration and Exhibit Setup** | Upper Hotel Lobby & Marquette Ballroom North
6:00–6:30 PM | **Illinois River Coordinating Council Reception** | Cotillion Ballroom
6:30–8:30 PM | **Public Forum—Illinois River Coordinating Council** | Cotillion Ballroom

Wednesday, October 5, 2011

- 7:45 AM–4:30 PM | **Registration / Information Desk** | Upper Hotel Lobby
7:45–8:45 AM | **Continental Breakfast; Visit Exhibits** | Marquette Ballroom North
8:45–9:00 AM | **Opening Remarks** | Marquette Ballroom South
9:00–9:45 AM | **Plenary Session One** | Marquette Ballroom South
9:45–10:15 AM | **Break; Visit Exhibits** | Marquette Ballroom North
10:15–11:15 AM | **Plenary Session Two** | Marquette Ballroom South
11:30 AM–1:00 PM | **Lunch / Feature Presentation** | Cotillion Ballroom
1:15–2:30 PM | **Concurrent Sessions** | Various locations
1:15–4:15 PM | **Interactive Digital Technologies Open House** | Illinois Room
2:30–3:00 PM | **Break; Visit Exhibits** | Marquette Ballroom North
3:00–4:30 PM | **Concurrent Sessions** | Various locations
5:30–8:00 PM | **Evening Dinner Gathering** | Contemporary Art Center of Peoria

Thursday, October 6, 2011

- 7:45 AM–12:00 noon | **Conference Registration / Information Desk** | Upper Hotel Lobby
7:45–8:30 AM | **Continental Breakfast; Visit Exhibits** | Marquette Ballroom North
8:30–9:45 AM | **Concurrent Sessions** | Various locations
9:45–10:15 AM | **Break; Visit Exhibits** | Marquette Ballroom North
10:15–11:30 AM | **Concurrent Sessions** | Various locations
11:45 AM–1:15 PM | **Lunch / Feature Presentation** | Cotillion Ballroom
1:15–1:30 PM | **Closing Comments & Adjourn** | Cotillion Ballroom

Conference Agenda

Tuesday, October 4, 2011

8:15–9:00 AM | Upper Hotel Lobby
Conservation Tour Registration

9:00 AM–4:15 PM
Illinois River Watershed Conservation Tour

8:30–9:00 AM | Upper Hotel Lobby
RiverWatch Symposium Registration

9:00 AM–3:00 PM | Marquette Ballroom South
RiverWatch Symposium

1:00–6:15 PM | Upper Hotel Lobby & Marquette Ballroom North
Conference Registration and Exhibit Setup

6:00–6:30 PM | Cotillion Ballroom
Illinois River Coordinating Council Reception
Hors d'oeuvres and beverages (cash bar)

6:30–8:30 PM | Cotillion Ballroom
Public Forum—Illinois River Coordinating Council

The public is invited to a discussion with **Lieutenant Governor Sheila Simon** about the Illinois River. Simon chairs the Illinois River Coordinating Council, a diverse group of citizens, not-for-profit organizations, and state and federal agencies. Through a public dialogue, the council coordinates initiatives, projects, and funding to promote the ecological health of the Illinois River.

This meeting will focus on the Integrated Management Plan for the Illinois River Watershed. They will review progress toward the seven measurable outcomes outlined in the plan. Once this is complete, the council will review projects and initiatives to determine their effectiveness toward implementing the recommendations of the Integrated Management Plan.

For more information and to view the agenda, visit www.ltgov.illinois.gov.



Wednesday, October 5, 2011

7:45 AM–4:30 PM | Upper Hotel Lobby
Registration / Information Desk

7:45–8:45 AM | Marquette Ballroom North
Continental Breakfast; Visit Exhibits

8:45–9:00 AM | Marquette Ballroom South
Opening Remarks
William P. White, Conference Co-Chair, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Welcome Address
Mayor Jim Ardis, City of Peoria

9:00–9:45 AM | Marquette Ballroom South
Plenary Session One

River Management: Making Informed Choices in a Changing Environment
Robert M. Hirsch, U.S. Geological Survey

Moderator: State Senator David Koehler, 46th District



9:45–10:15 AM | Marquette Ballroom North
Break; Visit Exhibits

10:15–11:15 AM | Marquette Ballroom South
Plenary Session Two:

From Carp to CREP: Challenges and Opportunities for the Illinois River

John Rogner, Department of Natural Resources

Moderator: State Senator David Koehler, 46th District

Conference Agenda

Wednesday, October 5, 2011

11:30 AM–1:00 PM | **Cotillion Ballroom**

Lunch / Feature Presentation

Implications of the Great Lakes Geological Mapping Coalition for Management of the Illinois River System

Richard C. Berg, Illinois State Geological Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign



Moderator: **William P. White**, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

1:15–4:15 PM | **Illinois Room**

Interactive Digital Technologies Open House

Moderators: Andrew Phillips, Illinois State Geological Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign, and **Gary P. Johnson**, U.S. Geological Survey, Illinois Water Science Center

Rich data resources and powerful mapping and measurement tools to help you accomplish your resource management goals are increasingly available on the Internet. At this open house, attendees will be able to get one-on-one expert advice to help identify, acquire, and understand available data, turn data into useful illustrations or maps, and combine various data to answer questions. Both novice and advanced users are welcome.

Come with questions, leave with results!

Presentations

How to Access USGS Water Resources Data

Gary P. Johnson, U.S. Geological Survey, Illinois Water Science Center

Historic Aerial Photographs of Illinois

Dee Lund, Illinois State Geological Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

The National Map

Shelley Silch, U.S. Geological Survey

Resource Management Mapping Service (RMMS): A Tool for Watershed Stakeholders

Carolyn S. White, University of Illinois at Urbana-Champaign

Web Mapping Application Showing New Stream Studies in Illinois

Matt Williams, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

The Simple Yet Powerful Way to Access and Use Soil Data

Timothy Prescott, Illinois Natural Resources Conservation Service

1:15–2:30 PM

Concurrent Sessions

Session A-1 | **Marquette Ballroom South**

The Turbulent Present and Future of Commercial Navigation on the Illinois Waterway

Moderator: Steve Jaeger, Heart of Illinois Regional Port District

Overview of Inland Waterways Transportation Issues

Paul Rohde, The Waterways Council Inc.

Inland Waterways Infrastructure Projects:

What, Where and When

Mike Cox, U.S. Army Corps of Engineers, Rock Island District

Trends in Grain Movement on the Illinois Waterway

Scott Sigman, Illinois Soybean Association

Navigation Channel Safety and Marine Security

Alan Guedesse, U.S. Coast Guard

Session B-1 | **Cheminee**

Federal Ecosystem Restoration Programs: Opportunities to Enhance National Recognition

Moderator: Marshall B. Plumley, U.S. Army Corps of Engineers, Rock Island District

Illinois Conservation Reserve Enhancement Program

Debbie Bruce, Illinois Department of Natural Resources

Opportunities for Making NRCS Programs Work for Your Watershed or Landscape Level Plan

Ivan Dozier, USDA–Natural Resources Conservation Service

Upper Mississippi River Ecosystem Restoration Objectives— Illinois River Reach Planning

Charles Theiling, U.S. Army Corps of Engineers, Rock Island District

Session C-1 | **LaSalle**

Natural Resources: Challenges and Solutions

Moderator: Ron Fisher, U.S. Fish & Wildlife Service

The Waterfowl Tradition in the Historic Illinois River Valley

Stephen Havera, Illinois Natural History Survey

Historical and Contemporary Characteristics of Illinois River Valley Wetlands

Aaron Yetter, Illinois Natural History Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Illinois River Floodplain Forests: Past, Present, and Future

Lyle Guyon, National Great Rivers Research and Education Center

Conference Agenda

Wednesday, October 5, 2011

2:30–3:00 PM | Marquette Ballroom North

Break; Visit Exhibits

3:00–4:30 PM

Concurrent Sessions

Session A-2 | Marquette Ballroom South

Challenges of Changing Climate

Moderator: Eric Grimm, Illinois State Museum

A 14,000-Year Midwestern Record of Climate from Riparian Oaks

Richard Guyette, University of Missouri

Past Climate Change in Illinois

Jim Angel, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Climate Change Vulnerability of Species in Greatest Need of Conservation: Implications for Aquatic Life in Illinois

Jeffery Walk, Illinois Chapter of The Nature Conservancy

Session B-2 | Cheminee

Federal Ecosystem Restoration Programs: Opportunities to Enhance National Recognition

Moderator: John Ortlieb, U.S. Army Corps of Engineers, Rock Island District

Waubonsie Creek Fish Passage: Oswegoland Park District Perspective

Grant Casleton, Oswegoland Park District

Illinois River Total Maximum Daily Loads (Peoria Area): Focusing on Implementation in a Local, State, and Federal Partnership

Jennifer S. Clarke, Illinois Environmental Protection Agency, and **Chris Urban**, U.S. Environmental Protection Agency

Illinois Flood Risk Management Team

Hank DeHaan, U.S. Army Corps of Engineers, Rock Island District

Session C-2 | LaSalle

Natural Resources: Challenges and Solutions

Moderator: Marc Miller, Illinois Department of Natural Resources

The Long-Term Illinois River Fish Population Monitoring Program, 1957–2010

Michael A. McClelland, Illinois Natural History Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Captive Propagation as a Tool for Restoring Illinois River Mussel Diversity

Tharran Hobson, The Nature Conservancy

Challenges of Nonnative Fishes in the Illinois River

Kevin Irons, Illinois Department of Natural Resources

5:30–8:00 PM | Contemporary Art Center of Peoria

Evening Dinner Gathering

305 SW Water Street

(Registered conference participants only)

Please join your colleagues for an evening of networking, entertainment, and good food.



Conference Agenda

Thursday, October 6, 2011

7:45 AM–12:00 noon | **Upper Hotel Lobby**

Conference Registration / Information Desk

7:45–8:30 AM | **Marquette Ballroom North**

Continental Breakfast; Visit Exhibits

8:30–9:45 AM

Concurrent Sessions

Session A-3 | Marquette Ballroom South

Illinois River History and Chicago River Separation Study

Moderator: Arlan Juhl, Illinois Department of Natural Resources, Office of Water Resources

History of Changes in the Illinois River System and Implications for Current Management

William P. White, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Envisioning a Chicago-Area Waterways System for the 21st Century—A Separation Study

Scott Stuewe, HDR Engineering, Inc.

Historical Overview of the Development of Illinois Water Law in the Illinois River Basin

Gary R. Clark, Illinois Department of Natural Resources, Office of Water Resources

Session B-3 | Cheminee

Nutrient Management in Rural Landscapes

Moderator: Jean Payne, Illinois Fertilizer and Chemical Association

Upper Peoria Lakes Wetland and Water Quality Project

Eric W. Schenck, Ducks Unlimited

Adaptive Management of Nutrients for Economic and Environmental Benefit

Suzy Friedman, Environmental Defense Fund

Targeted Implementation and Evaluation of Constructed Wetlands to Reduce Agricultural Nutrient Exports and Improve Drinking Water Quality in Subwatersheds of the Mackinaw River, Illinois

Maria Lemke, The Nature Conservancy, and **Rick Twait**, City of Bloomington Water Department

Session C-3 | LaSalle

Monitoring I: Nutrients

Moderator: Debbie Bruce, Illinois Department of Natural Resources

Lake Decatur Watershed—15 Years: Nitrates and Trends

Laura Keefer, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Illinois River Conservation Reserve Enhancement Program: Sediment and Nutrient Delivery Assessment

Misganaw Demissie, Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Distribution and Sources of Nutrients in the Illinois River Basin in Comparison to Other Areas of the Upper Mississippi River Basin

Dale M. Robertson and **David A. Saad**, U.S. Geological Survey

9:45–10:15 AM | **Marquette Ballroom North**

Break; Visit Exhibits

10:15–11:30 AM

Concurrent Sessions

Session A-4 | Marquette Ballroom South

Social Factors for Water Resource Management

Moderator: Andrew Phillips, Illinois State Geological Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

Navigating Diverse Perceptions of the Environment Among Watershed Stakeholders

Courtney Flint and **Lama BouFajreldin**, University of Illinois at Urbana-Champaign

Social Indicators for Nonpoint Source Management

Ken Genskow, University of Wisconsin–Madison

Integrating Science into Water Supply Planning

Cassandra McKinney, County of McHenry Department of Planning and Development

Session B-4 | Cheminee

Stormwater Management in Urban Landscapes

Moderator: Melinda Pruett-Jones, Chicago Wilderness

The Illinois Urban Manual Update Process

Jim Nelson, Assoc. of Illinois Soil and Water Conservation Dist.

Conference Agenda

Thursday, October 6, 2011

Illinois' Approach to Stormwater and Green Infrastructure

Christine Davis, Illinois Environmental Protection Agency,
Bureau of Water

Sustainable Stormwater Green Infrastructure Practices in the Illinois River Headwaters

Patricia S. Werner, Lake County Stormwater Management
Commission

Session C-4 | LaSalle

Monitoring II: Sediment

Moderator: Nani G. Bhowmik, Illinois State Water
Survey, Prairie Research Institute, University of Illinois at
Urbana-Champaign

Illinois Benchmark Sediment Monitoring Program: 30 Years

Laura Keefer, Illinois State Water Survey, Prairie Research
Institute, University of Illinois at Urbana-Champaign

Draft National Guidelines for Assessing Sediment-Related Effects of Dam Removal: Illinois' Role

Timothy D. Straub, U.S. Geological Survey

How Do Human Impacts and Geomorphological Responses Vary with Spatial Scale in the Streams and Rivers of the Illinois Basin?

Bruce L. Rhoads, University of Illinois at Urbana-Champaign



Thank you...

Thank you for your attendance and support of the
13th Annual Governor's Conference on the Manage-
ment of the Illinois River System.

11:45 AM–1:15 PM | Cotillion Ballroom

Lunch / Feature Presentation

Water: The Key to Restorative Design

James Patchett, Con-
servation Design Forum,
Inc.



***A Public/Private
Comprehensive Model
for Socio-Economic
and Environmental Improvements***

Tony E. Pierce, Community Development &
Services Institute



Moderator: Russ Crawford, Heartland Water Resources
Council of Central Illinois

1:15–1:30 PM | Cotillion Ballroom

Closing Comments & Adjourn

RiverWatch Symposium

Tuesday, October 4, 2011

8:30 AM–3:00 PM

The first biennial RiverWatch Symposium will convene citizen scientists and stream stewards from around the state to share data and dialogue about ongoing and potential stream monitoring and restoration efforts.

The purpose of the event is to

- Share results of the analysis of RiverWatch volunteer data (1995–2010)
- Host a poster session to highlight current and ongoing stream monitoring and restoration efforts in Illinois and volunteer opportunities associated with those efforts
- Share success stories of the RiverWatch program
- Recognize outstanding service by RiverWatch citizen scientists and program staff through an awards ceremony

RiverWatch is a statewide partnership of organizations and individuals working to protect Illinois streams. Certified volunteers collect reliable water quality data that are used to determine how the conditions of streams are changing over time. Since its founding in 1995, over 1,700 individuals have received certification through RiverWatch, and 750 stream sites have been established for annual water quality sampling. RiverWatch is a program of the National Great Rivers Research and Education Center. For additional information, visit <http://ngrrec.org/>.

Logistics

8:15–9:00 AM | **Registration and Continental Breakfast** | Marquette Ballroom South

9:00 AM–3:00 PM | **RiverWatch Symposium**

Participation in this event is limited and may not be available after September 15, 2011.

Cost: \$50.00 (not included in conference registration fees)

Questions regarding the RiverWatch Symposium should be directed to the Program Coordinator at 618.468.4870.

Illinois River Watershed Conservation Tour

Tuesday, October 4, 2011

9:00 AM–4:15 PM

Make plans to take part in the conservation tour through the scenic central Illinois counties of Peoria, Marshall, Woodford, and Tazewell.

The tour will include

- Commentary on the newly created Corps of Engineers Island in the Illinois River near Peoria
- Wightman Lake and viewing area wildlife
- Locally grown produce
- A USDA Mississippi River Basin Healthy Watershed Initiative wetland site
- Woodford County State Fish and Wildlife Area
- Bass Pro Shops® store in East Peoria

You will also see various conservation practices, abundant wildlife habitat, and great scenery along the way as we leave the city bustle behind and head for the country. We hope to provide historical information as we tour the area.

The tour will be by charter bus. Lunch and refreshments will be provided by local growers. Wear comfortable clothing and shoes for walking on uneven or rough terrain. Be prepared for all weather conditions. Remember your camera or binoculars.

Logistics

8:15–9:00 AM | **Registration and Continental Breakfast** | Upper Hotel Lobby

9:00 AM | **Departure**

4:15 PM | **Return**

Cost: \$40.00 (not included in conference registration fees)

Parking is available at the hotel parking lot.

www.conferences.illinois.edu/ilriver

Mayor of Peoria

Jim Ardis

Mayor
City of Peoria
419 Fulton, Suite 207
Peoria, IL 61602
309-494-8519
jardis@ci.peoria.il.us

Education: Spalding Institute/AOL; Illinois State University: BS, Industrial Technology 1982
Family: Married, 21 years; 3 children
Current Employment: ELM Locating, 60 State Street, Peoria, IL 61602

Community Involvement:
Mayor (2005 - Present)
Councilman At Large (1999 - 2005)
St. Vincent de Paul Parish
St. Jude Memphis to Peoria Runners (11 years)
Haitian Hearts Sponsor Family
Board President of the Tim Ardis Foundation for Hope

Committee Membership:
Riverfront Business Commission
Mayor's Advisory Commission for the Disabled Council Liaison
Council Liaison to CityLink/Mass Transit District
City/County Landfill Committee

Featured Lunch Speaker

Dr. Richard C. Berg

Illinois State Geological Survey
217-244-2776
berg@isgs.illinois.edu

Dr. Richard C. Berg has been at the Illinois State Geological Survey since 1974, and now serves as Acting Chief Scientist. He received his B.S. in Physical Geography from Indiana State University, an M.A. in Geomorphology from Eastern Michigan University, and a Ph.D. in Soil Geomorphology from the University of Illinois at Urbana-Champaign. His ISGS career and numerous ISGS and outside publications, have focused on coastal processes and mapping along the Illinois shore of Lake Michigan, 3-D geological mapping of glacial sediments, aquifer sensitivity assessments, and Quaternary geology.

Implications of the Great Lakes Geological Mapping Coalition for Management of the Illinois River System

The Great Lakes Geologic Mapping Coalition was founded in 1997 by State Geological Surveys from Illinois, Indiana, Michigan, and Ohio, in partnership with the U.S. Geological Survey. This Coalition formed because no single agency had the capability nor funding to address critical groundwater and earth resource issues, particularly in urban and suburban regions of the four states. Then known as the Central Great Lakes Geologic Mapping Coalition, it was tasked with producing 3-D geologic maps of glacial sediments from land surface to the bedrock surface, with particular attention paid to aquifer identification and protection. In 2008, the Coalition expanded to include the other four State Geological Surveys touching the Great Lakes - Minnesota, Wisconsin, Pennsylvania, and New York. Although this Coalition for most of its tenure has only received a federal appropriation of \$500,000/year, and, since 2009, \$750,000/year split amongst the nine partners, its real strength has been the camaraderie and sharing of ideas, mapping strategies, solutions to often complex scientific questions, and sometimes staff, in a free and open setting.

A particular priority mapping area for Coalition states has been along the region's major rivers valleys, as these areas commonly host some of the regions' largest metropolitan areas, and also often contain plentiful and stressed groundwater resources that must be protected. Understanding the geologic history of these river systems has been challenging. In Illinois for example, the ISGS has had a long-standing program of 3-D geologic mapping along the middle Illinois River to better understand ancient river processes, how they have interacted with multiple glaciations, and the often patchy evidence left behind. We stand much to gain by additional interactions with fluvial geomorphologists, hydraulic engineers, watershed managers, and others involved with studying today's modern large rivers in the Great Lakes states. The present remains the "key to the past" and the Great Lakes Geologic Mapping Coalition is the venue that can bring these groups together.

Moderator: William P. White

Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign
(Complete biography on page 66.)

Featured Lunch Speaker

James Patchett

James Patchett, FASLA, LEED AP
Conservation Design Forum, Inc.
630.559.2000
jpatchett@cdfinc.com

James Patchett, FASLA, LEED AP is founder and President of Conservation Design Forum, Inc. located in Elmhurst, IL. Jim is widely recognized as one of the nation's leading pioneers in the design and promotion of sustainable site planning methodologies that integrate innovative water resource management and ecological restoration measures into built environments. Trained both as a landscape architect and hydrologist, Jim has served on a variety of national technical advisory committees including the ASLA Sustainable Sites initiative and is a highly sought out speaker and educator on the subject. Jim is also co-founder of Conservation Research Institute.

Jim received an undergraduate degree in landscape architecture, and master's degrees in both landscape architecture and civil engineering (water resources) from Iowa State University, and has completed the necessary course work towards a PhD in landscape architecture from the University of Michigan's School of Natural Resources.

Water: The Key to Restorative Design

The presentation will focus on the following key concepts:

- Provide an overview of the scientific principles and functions associated with historical patterns of hydrology and the hydrological relationships between terrestrial and aquatic ecosystems.
- Discuss land and water resource impacts associated with contemporary urban, suburban, and rural agricultural land use practices including adverse effects on flooding, aquifer depletion, water quality degradation, habitat and bio-diversity loss, climate change, and even global warming.
- Explore important cultural relationships to land and water resources, describing a scientific and philosophical foundation for the promotion of sustainable planning, design, development, and long term systems management practices in built and natural environments.
- Review a variety of infiltration-based sustainable water management “green infrastructure” practices including green roof technologies, porous pavements, bio-retention systems, rainwater harvesting and reuse, and the integration of native landscapes.
- Present case studies that illustrate how to apply these sustainable development practices through integrated design.

Featured Lunch Speaker

Tony E. Pierce

Community Development and Services Institute
309-682-2360
HEAVENVIEW.CFC@GMAIL.COM

The Reverend Tony E. Pierce serves as Co-Senior Pastor of Heaven's View Christian Fellowship, CEO of Heaven's View Community Development Corporation and Co-Founder of the Community Development & Service Institute. Rev. Pierce was educated at Southern Illinois University, Edwardsville, Illinois, and Brookes Bible Institute, St. Louis, Missouri. He is also a graduate of Harvard University Divinity School's Summer Leadership Institute. He has served in ministry since 1972. Prior to his full-time service in ministry, Rev. Pierce was bi-vocationally employed for over a decade with the former Bell Telephone System. During his tenure with Bell, Rev. Pierce held numerous managerial positions: ranging from technical management, staff management, and personnel management to sales management.

Under Rev. Pierce's leadership, Heaven's View Christian Fellowship and Heaven's View Community Development Corporation (formerly known as Christian Family Center Church and Christian Family Center Corporation) were cited as one of 19 successful Illinois faith-based community development paradigms by Northwestern University Professors John P. Kretzmann and John L. McKnight in their book, *Building Communities from the Inside Out*.

The Community Development & Service Institute has collaborated with Illinois Central College and Lincoln Christian University to establish a fully-accredited bible college in Peoria, Illinois. This educational collaboration exists to train clergy and others in biblical literacy, service skills, and community economic development. The Community Development & Service Institute and its many broader-based community collaborations provide training, planning, and project facilitation of large-scale economic development and restoration projects to transform communities and mitigate poverty.

Boards or Advisory Boards that Rev. Pierce serves on include the following institutions or events: Central Illinois Organizing Project, Central Illinois Workforce Development, Children's Hospital Of Illinois, Community Builders' Foundation, Heartland Water Resources Council, Heaven's View Community Development Corporation, Illinois Economic Education Workshop For Clergy, Illinois Faith-Based Association, and Peoria Ministries' Economic Development Organization.

Building A New Financial Eco-System: A Framework To Accomplish Under-Funded Goals & Solve Complex Problems

The Community Development & Service Institute's co-founder, Rev. Tony Pierce, will discuss achieving previously under-funded, complex-interrelated regional economic development and conservation goals within the context of building a new financial eco-system. He will discuss how mash-up logic is being applied to discover new opportunities, relationships and approaches between seemingly unrelated or adversarial entities and groups in problem solving.

He will present how the Community Development & Service Institute has created the critical mass of developers and collaborators sufficient to develop a \$330M, 274 acre, local model green-community in today's economically -stressed marketplace. He will show how the development of financial and social assets associated with that project will fund needed ongoing-dredging of Lake Peoria to maintain its deep water. And he will discuss how the sustainable synergy generated by these projects and others associated with them will mitigate and eliminate urban and rural pockets of poverty throughout our region.

Moderator: Russ Crawford

Heartland Water Resources Council of Central Illinois

Robert M. Hirsch

U.S. Geological Survey
703-648-5888
rhirsch@usgs.gov

Dr. Robert M. Hirsch currently serves as a Research Hydrologist at the USGS. From 1994 through May 2008, he served as the Chief Hydrologist of the U.S. Geological Survey. In this capacity, Dr. Hirsch was responsible for all U.S. Geological Survey (USGS) water science programs. These programs encompass research and monitoring of the nation's ground water and surface water resources including issues of water quantity as well as quality. From 2003 - 2010 he has served as the co-chair of the Subcommittee on Water Availability and Quality of the Committee on Environment and Natural Resources of the National Science and Technology Council, and in this role he has been instrumental in developing interagency priorities for water science and technology.

Hirsch earned a Ph.D. from the Johns Hopkins University Department of Geography and Environmental Engineering. He began his USGS career in 1976 as a hydrologist and has conducted research on water supply, water quality, pollutant transport, and flood frequency analysis. He had a leading role in the development of several major USGS programs: 1) the National Water Quality Assessment (NAWQA) Program; 2) the National Streamflow Information Program (NSIP); and 3) the National Water Information System Web (NWISWeb). He has received numerous honors from the Federal Government and from non-governmental organizations, including the 2006 American Water Resources Association's William C. Ackermann Medal for Excellence in Water Management, and has twice been conferred the rank of Meritorious Senior Executive by the President of the United States. He is a recipient of the USGS "Eugene M. Shoemaker Award for Lifetime Achievement in Communications." He is co-author of the textbook "Statistical Methods in Water Resources." Dr. Hirsch is a Fellow of the American Association for the Advancement of Science and an active member of the American Geophysical Union and the American Water Resources Association. He has testified before congressional committees on many occasions and presented keynote addresses at many water-related meetings across the nation.

Since returning to a research position he has focused his efforts on describing long-term changes in streamflow and water quality. This includes exploring century-scale trends in flooding nationwide. It also includes the development of new methods for tracking nutrient transport trends for Chesapeake Bay, Lake Champlain, and the Mississippi River Basin. A major goal of this research is to improve communication of hydrologic trends in a manner that is helpful to water policy and management.

River Management: Making Informed Choices in a Changing Environment

The Illinois River is a prime example of a water resource with many uses, many stakeholders, and many challenges and opportunities. Wise management of the resource requires a solid knowledge of the way the system has changed, a realistic assessment of how it may change in the future, and a scientific understanding of the choices to be made and the consequences of those choices. The Illinois River responds to the management of water in one of the great urban centers of the Nation, one of the most productive agricultural areas of the Nation, and it has a great influence on the Nation below its mouth, and a potentially great influence on the Nation above its headwaters. The science challenges that must be met to manage the Illinois River system wisely include consideration of cycling of nutrients (from urban and agricultural sources), water availability (as influenced by climate and water use), the movement of aquatic biota, and the influences of land-use change on water availability and quality. The talk will explore the rich history of data on the quantity and quality of water in the Illinois River and how continued collection and analysis of water data are crucial to making good decisions for the future and tracking the outcomes of those decisions.

Moderator: David Koehler

State Senator Koehler, 46th District

John Rogner

Assistant Director
Illinois Department of Natural Resources
John.Rogner@illinois.gov
217-785-0075

John Rogner was appointed by Governor Pat Quinn in July 2009 as Assistant Director of the Illinois Department of Natural Resources. Prior to that he served as Field Supervisor of the Chicago Field Office of the U.S. Fish and Wildlife Service, a position he held since 1997. He directed all of the Service's programs in endangered species conservation, environmental contaminants, conservation planning assistance, habitat restoration, and environmental education in the six-county Chicago metropolitan area. During this time he also served as Chair of Chicago Wilderness, a coalition of over 240 organizations dedicated toward conserving the biodiversity of the Chicago region. From 1991 to 1997 he served as Assistant Field Supervisor in the same office.

From 1983 to 1991 he worked for the Chicago District of the U.S. Army Corps of Engineers, where he held various positions implementing the regulatory program under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Project management responsibilities included preparation of environmental assessments and other environmental compliance documents, providing in-house expertise in wetland delineation, and providing expert witness testimony. He later served as Chief of the Regulatory Branch.

Mr. Rogner has undergraduate and graduate degrees in biological sciences from Northern Illinois University. He also has been certified as a Professional Wetland Scientist through the Society of Wetland Scientists.

From Carp to CREP: Challenges and Opportunities for the Illinois River

The Illinois River has been known for its biological riches since the earliest recorded explorations. The stresses on the river system include many years of excessive sedimentation to more recent invasions of Asian carp. Despite this history of alteration, there remain significant resources of national significance, strong support for restoration, and many examples of environmental success. These include a developing Asian carp management program, a successful Conservation Reserve Enhancement Program, and an expanding application of green infrastructure practices. Federally-supported Landscape Conservation Cooperatives and President Obama's America's Great Outdoors initiative present opportunities for an intensified focus on the Illinois River.

Moderator: David Koehler

State Senator David Koehler, 46th District
311 Capitol Building
Springfield, IL 62706
217-782-8250

- Born and raised in South Dakota.
- Received Bachelor of Arts degree in 1971 from Yankton College - Yankton, South Dakota. Masters of Divinity; United Theological Seminary - Dayton, Ohio.
- Former Staff member; National Farm Worker Ministry (NFWM).
- Former Community organizer and program manager for Peoria Friendship House.
- Former Executive Director - Peoria Area Labor Management Council (PALM).
- Former President for Labor Management Cooperative Health Programs, Inc.
- Peoria City Council 1989-1997
- Peoria County Board 1982-1988
- Current co-owner of the Peoria Bread Company.

Session A-1

The Turbulent Present and Future of Commercial Navigation on the Illinois Waterway

Moderator: Steve Jaeger

Heart of Illinois Regional Port District
309.495.5918
sjaeger@h-p.org

Steve Jaeger relocated to Peoria, Illinois in October 2006 to accept the position of Executive Director for the Heart of Illinois Regional Port District. This public agency, created in 2003 by Act of the State of Illinois Legislature, exercises oversight of commercial maritime operations on the Illinois River waterway in six Illinois counties, and serves as an economic development advocate for transportation, logistics and distribution activities in the region.

Previously, Steve was employed for fifteen years by the Port of New Orleans, Louisiana as Director of Marketing and Director of Operations respectively, and most recently served as Director of Marketing for motor carrier Garleped Transfer in 2006. Prior to moving to New Orleans in 1989, Steve was Director of Marketing for the Port of Houston Authority at Houston, Texas, and had earlier assignments in marketing and operations for private sector shipowners Wilhelmsen Lines and Orient Overseas Container Line in Chicago, New York and Houston.

Steve served as president of the World Trade Club of Greater New Orleans 2004-06, and was an adjunct professor of transportation and logistics within the business programs at both Loyola University New Orleans and Southeastern Louisiana University. In Peoria, he is on the Board of the Transportation Club of Peoria and heads the Intermodal Logistics Strategy Group for the Economic Development Council.

A native of Chicago, Steve has an M.B.A. degree in marketing from DePaul University and a B.A. degree in political science from Loyola University Chicago. Steve and wife Mary Lou now reside in Peoria, with grown children Danny and Amanda back in Louisiana.

Paul Rohde

The Waterways Council Inc.

Paul Rohde serves as Vice President of Waterways Council Inc. since January 2007, following a merger with the Midwest Area River Coalition (MARC 2000) where he served as President from 2005-2007, and Vice President 2001-2004. Waterways Council is the national public policy organization advocating for a well-maintained system of inland waterways and ports. Headquartered in Washington, DC, Waterways Council works to educate legislators, the media and the general public about the critical importance of our nation's inland waterways as a commercially navigable conduit, and the need to sustain and increase the reliability of river transportation.

WCI's priorities include efficient funding for river locks and dams, proper maintenance of our inland navigation system, prioritizing Operations and Maintenance needs of the Corps of Engineers, and a construction start for the authorized Upper Mississippi and Illinois locks. Central to all of these is working with the Corps to find better, more efficient and cost effective ways to plan, fund, and build projects, as well as maintaining the existing system to meet future transportation needs.

Rohde maintains the Midwest office out of St. Louis to serve as the nucleus for its coalition of Midwest members, providing a grassroots network comprised of agricultural producers, industrial manufacturers, shippers, waterway carriers, and economic development interests, among others. As Waterways Council VP, Paul contributes to the formulation of legislative and policy issues, developing a comprehensive public education campaign, initiating effective grassroots activism activities, handling regional media services and membership services and development. He continues to promote the importance of the river's economic usage to groups both in DC and back here in the Upper Miss Basin, looking for ways to highlight opportunities for collaboration among sporting, conservation, river cleanup, and other interests where a greater focus on river awareness and education is attainable. Rohde advances the informational and legislative goals of Waterways Council by assisting in the formulation of legislative & policy issues, developing a comprehensive public education campaign, initiating its grassroots activism, assisting in media services and membership services and development.

Overview of Inland Waterways Transportation Issues

Michael D. Cox

U.S. Army Corps of Engineers
309.794.5401
Michael.D.Cox@usace.army.mil

Mike serves as Deputy Chief, Operations Division for the U.S. Army Corps of Engineers, Rock Island District, Rock Island, IL since August 2010. He shares responsibility for oversight of approximately 550 workers serving at 20 locks and dams, various maintenance and repair crews, workers addressing permit compliance and levee inspection, and 5 flood control reservoirs, 3 in Iowa and 2 in East Peoria. Prior to this, Mike spent five years in Peoria serving as Operations Manager for the Illinois Waterway, and Chief of the Lock and Dam Section. Mike also worked as a channel maintenance coordinator for the District for more than 10 years, working on dredging and dredged material placement actions, ensuring State and federal environmental and regulatory compliance with these activities.

Mike's been with the Corps since 1978, and has also served as survey technician, underwater diver, boat operator and navigation specialist, among other duties. He has drafted mitigation guidance for channel maintenance activities and worked to finalize the document, still in use today.

Mike has a bachelor's degree in biology; he is a member of COPRI (of ASCE), WEDA (Western Dredging Assn.), PIANC (International Navigation Association), Toastmasters, and is an affiliate member of ASCE; he serves on various other committees in and outside of the Corps and is involved with church activities within his community. He has authored and co-authored various manuals and articles and has published one technical paper. He still holds and uses a Coast Guard tow boat operator's license.

Mike is happily married to his very tolerant wife, Laurie, of more than 31 years, and they have 2 daughters, both currently in grad school (one in music and the other in physics).

Implications of the Great Lakes Geological Mapping Coalition for Management of the Illinois River System

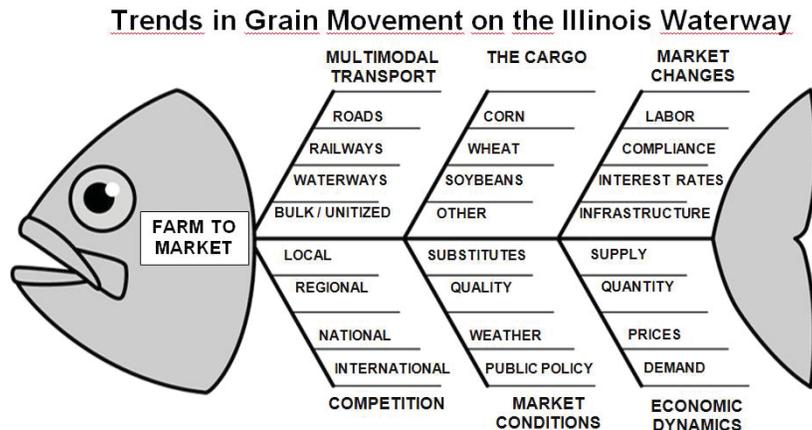
The Great Lakes Geologic Mapping Coalition was founded in 1997 by State Geological Surveys from Illinois, Indiana, Michigan, and Ohio, in partnership with the U.S. Geological Survey. This Coalition formed because no single agency had the capability nor funding to address critical groundwater and earth resource issues, particularly in urban and suburban regions of the four states. Then known as the Central Great Lakes Geologic Mapping Coalition, it was tasked with producing 3-D geologic maps of glacial sediments from land surface to the bedrock surface, with particular attention paid to aquifer identification and protection. In 2008, the Coalition expanded to include the other four State Geological Surveys touching the Great Lakes - Minnesota, Wisconsin, Pennsylvania, and New York. Although this Coalition for most of its tenure has only received a federal appropriation of \$500,000/year, and, since 2009, \$750,000/year split amongst the nine partners, its real strength has been the camaraderie and sharing of ideas, mapping strategies, solutions to often complex scientific questions, and sometimes staff, in a free and open setting.

A particular priority mapping area for Coalition states has been along the region's major rivers valleys, as these areas commonly host some of the regions' largest metropolitan areas, and also often contain plentiful and stressed groundwater resources that must be protected. Understanding the geologic history of these river systems has been challenging. In Illinois for example, the ISGS has had a long-standing program of 3-D geologic mapping along the middle Illinois River to better understand ancient river processes, how they have interacted with multiple glaciations, and the often patchy evidence left behind. We stand much to gain by additional interactions with fluvial geomorphologists, hydraulic engineers, watershed managers, and others involved with studying today's modern large rivers in the Great Lakes states. The present remains the "key to the past" and the Great Lakes Geologic Mapping Coalition is the venue that can bring these groups together.

Session A-1

Scott Sigman

Mr. Sigman has over 25 years of experience in global trade and transportation planning, assessment of economic impacts, preparation of reports, business plans, assessments and studies focused on container intermodal as well as multimodal freight operations. He has intertwined public and private enterprise business development experiences with a range of operational experiences in transportation including hazardous materials management, as well as port homeland security cargo planning. Leading public planning and business development for the state port authority in Indiana, Mr. Sigman also has budgeting, marketing, proposal writing skills and oversees responses to requests for proposals. Freight handling, including agricultural commodities and economic development experiences with infrastructure finance, consulting and environmental planning exercises have included engaging community stakeholders for



major projects. Scott has worked within the contexts of inspection procedures and applied regulatory compliance initiatives, including foreign trade zone documentation procedures, while aligning transport asset and infrastructure financing experiences at federal, state and local levels. Scott has applied analysis in consultative evaluations of transport modal shift, supply chain logistics, collaborations with engineering and construction management for transport facility development, and been integral to staffing logistics operations. Mr. Sigman earned his Master of Science in Economics focused through the Sea Use Law, Economics & Policy Programme from the University of London - London School of Economics & Political Science in London, England. He was awarded his Bachelor of Arts degree with a Double Major in Economics & International Relations from the University of Wisconsin-Madison.

Alan L. Guedesse

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Chief Warrant Office Guedesse entered the military service in 1981. During his 28 year active duty career he has been stationed at many units across the US. Throughout his early career his primary duties have been Search and Rescue and Maritime Law Enforcement. Since 1996, his assignments have specialized in Vessel Inspections, Marine Causality Investigation, Pollution Investigation, Port Security and Waterway Management. He is a graduate of the Coast Guard's Maritime Law Enforcement School, Small Arms Instructor School, Basic and Advanced Aids to Navigation School, Heavy Weather Coxswain School, Maritime Fire Fighting School, Marine Inspection School, Marine Investigation School and Maritime Security School.

Chief Warrant Officer Guedesse has been stationed at Peoria as the Senior Marine Inspector and Investigator since July of 2006. In August, 2010 he retired from the U.S. Coast Guard with 28 years of service. He was re-hired by the US Coast Guard as a Civilian Marine Inspector and Investigator and is currently assigned to Marine Safety Detachment, Peoria, Illinois. During the fall of 2010 he was assigned to the Gulf Coast region in support of the decontamination operations for the Deepwater Horizon oil spill. While working in the Florida, Alabama and Mississippi areas he oversaw or verified the decontamination of over 600 oil covered vessels.

Maintaining Channel Safety and Security on the Illinois Waterway

The U.S. Coast Guard reports to the Dept. of Homeland Security, not the Defense Department. While the inland waterway system is distant from either "coast," the USCG has a significant presence on all the navigable rivers including the Illinois. We have a full-service marine safety detachment based at the foot of Washington Street in East Peoria. While it's the U.S. Army Corps of Engineers that is responsible for dredging the nine foot barge channel and overseeing the locks on the waterways, the Coast Guard is charged with maintaining the extensive system of buoys and markings that delineate the channel. Our inspection vessels are out on the river regularly servicing and re-situating these critical signposts of the navigation system. The Illinois Waterway limits barges and tows to a maximum of 15 barges per towing vessel.

In addition to the channel markers, the Coast Guard coordinates all aspects of marine safety and makes necessary decisions dictated by river conditions. While we take pride in advertising the Illinois Waterway as a year-round artery for marine traffic, there are occasions when the river must be temporarily closed or traffic restricted in some way due to severe icing. The Coast Guard also coordinates Federal Homeland Security grant programs for municipalities, law enforcement agencies and private terminal operators. These grants help finance marine security investments ranging from camera systems to terminal gate systems to police watercraft. Lastly, the Coast Guard has a program of vessel inspections for all commercial watercraft, including towing vessels and all types of barges.

Federal Ecosystem Restoration Programs: Opportunities to Enhance National Recognition

Moderator: Marshall B. Plumley

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Mr. Plumley has spent 10 years in Rock Island District as a Study Manager in the Planning and Policy Branch. His time is divided primarily between the Illinois River Basin Restoration Program, Navigation and Ecosystem Sustainability Program (NESP), Louisiana, Regional Technical Specialist (RTS) duties and Illinois River Basin Integrator (IRBI). Plumley is responsible for the development and implementation of several Critical Restoration Projects in the Illinois River Basin Restoration Program, including dredging and island construction at Peoria. Additional projects include mainstem, floodplain, and backwater and sidechannel restoration projects. For NESP, he serves as the planning technical manager responsible for ensuring quality decision documents as well as leading the reach planning for the Illinois River of the Upper Mississippi River System. In 2010 he completed plan formulation for the Louisiana Coastal Area Medium Diversion at White Ditch. He currently provides Plan Formulation support for the Calcasieu Lock Project in Louisiana. As the Environmental Plan Formulation RTS for Mississippi Valley Division (MVD) Plumley provides direct support to Mississippi Valley Division Districts in review of decision documents. Finally, he also serves the District as the IRBI responsible for coordinating the various Corps missions throughout the Basin with our stakeholders and three sister Districts.

Debbie Bruce

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Debbie Bruce has worked for the Illinois Department of Conservation for 17 years and is currently the Chief of the Private Lands and Watersheds Division in the Office of Resource Conservation. She has held several positions during her 17 year tenure with Department, beginning in the Division of Fisheries as the Program Section Manager overseeing the Lake Michigan, Big Rivers, Streams, Contaminants, and Commercial Fisheries programs. Her main responsibilities have been the development and implementation of ecosystem and watershed programs that address both environmental and economic issues. Her Division oversees the state side of the Illinois Conservation Reserve Program (CREP), Partners for Conservation, the Illinois River Basin Restoration Program, Ecosystem Restoration Projects with the US Army Corps of Engineers, the Conservation Stewardship Program, and the new Illinois Recreational Access Program. Debbie holds a Bachelor of Science Degree in Biology and a Master of Arts Degree in Environmental Science from the University of Illinois.

Illinois Conservation Reserve Enhancement Program

The Conservation Reserve Enhancement Program (CREP) is a voluntary, incentive-based federal, state, and local conservation program that works with private landowners to establish conservation practices on erodible lands that help reduce runoff and sedimentation of waterways and enhance fish and wildlife habitat.

Since 1998, landowners in Illinois have voluntarily enrolled 126,500 acres in CREP in the Illinois River basin. The original goal was to enroll 232,000 acres in the program, and a recent expansion of the Illinois CREP to the Kaskaskia River basin will allow enrollment of the remaining 105,500 acres in both watersheds. CREP is now available in 68 counties in Illinois.

The Illinois CREP program works with landowners to provide both federal and state incentive payments and technical assistance in retiring flood-prone or environmentally-sensitive land through conservation practices that reduce sediment and nutrient runoff, improve water quality and enhance wildlife habitat.

Ivan Dozier

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Ivan Dozier is the USDA-NRCS (Natural Resources Conservation Service) Assistant State Conservationist for Programs. He was raised on his family's grain and cattle farm near the small town of Mill Shoals, in White County, Illinois.

Ivan's educational background includes a B. S. in Agriculture from the University of Illinois ('83) and an M.A. in Environmental Studies from the U of I Springfield ('92). He started work with NRCS (then the Soil Conservation Service) in 1983 as a Soil Conservation Aide in the Wayne County field office and later worked as a county soil scientist on the Wayne County Soil Survey. Ivan's body of work with NRCS includes experience as a Soil Conservationist in Brown County, Pike and Sangamon Counties, and as a District Conservationist in Gallatin and Macoupin Counties. In 2000, Ivan accepted the position as the American Indian Liaison for Illinois NRCS and in 2003, took on the position of Assistant State Conservationist for Programs at the NRCS State Office in Champaign.

Ivan is a past-President of the Illinois Chapter of the Soil and Water Conservation Society (SWCS). He served on the Illinois NRCS State Civil Rights Committee from 1996 until 2002 and on the National Civil Rights Committee from 1999-2000. He is a former tribal committeeman with the Southern Cherokee Nation, a former officer with the American Indian Council of Illinois, a past officer and advisor to the Midwest SOARRING (Save Our Ancestor's Remains and Resources Indigenous Network Group) Foundation, and the past-President of the National American Indian Alaska Native Employee Association for NRCS. In addition to his expertise in conservation programs, Ivan is considered an expert on native plants and their uses.

Opportunities for Making NRCS Programs Work for Your Watershed or Landscape Level Plan

Even in these lean times there are still several conservation programs that are available to help provide both technical and financial assistance for the planning and implementation of conservation practices. But sometimes these existing programs don't seem to be an exact fit for what you need or they are just too complicated and have too many options to wade through.

Mr. Dozier will discuss the variety of NRCS conservation programs and talk about how local conservation groups can direct attention to their particular resource concerns, participate in the development of ranking criteria for project selection, focus program funding on specific areas, and pool program funds for a more effective conservation impact. The discussion will include the utilization of Mississippi River Basin Initiative Funds (MRBI), Cooperative Conservation Partnership Initiative (CCPI) as well as opportunities to use singular programs such as EQIP, WHIP, and WRP to achieve conservation goals at the watershed or landscape level.

Charles Theiling

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Theiling came to the Upper Mississippi River in 1990 and has worked as a large river ecologist for the Illinois Natural History Survey, Ecological Specialists, Inc., the USGS, and most recently the Corps of Engineers since 2000. His experience in ecosystem restoration has been to integrate the physical factors driving ecological restoration outcomes into restoration project planning and design over large spatial scales. He was hired by Mississippi Valley Division as a Regional Technical Specialist to help implement ecological model certification and review in 2008. Theiling completed his PhD in interdisciplinary landscape ecology in 2010 using an Upper Mississippi River case study. He's been involved with ecological restoration benefits assessment for many years and am currently investigating the effects of climate change on a range of ecosystem services relevant to Corps missions in flood risk reduction and ecosystem restoration.

Upper Mississippi River Ecosystem Restoration Objectives – Illinois River Reach Planning

Formal planning for UMRS ecosystem management and restoration has been an ongoing process that was institutionalized in the 1970's and Upper Mississippi River System partners understand the interrelated information needs of multiple navigation and ecosystem restoration programs. Reach Planning was conducted to identify ecosystem objectives and subareas where they can be achieved in a program-neutral fashion. Reach Planning teams including the Fish and Wildlife Work Group (FWWG) in the Upper Impounded Reach (UIR); the Fish and Wildlife Interagency Committee (FWIC) in the Lower Impounded Reach (LIR); the Illinois River Work Group (IRWG) in the Illinois River (IR), and the River Resources Action Team (RRAT) in the Unimpounded Reach were established in four floodplain reaches to refine ecosystem restoration objectives over 1,100 river miles and 12 distinct geomorphic reaches. A "top-down," system-scale approach was undertaken because it emphasizes the physical hydraulic and geomorphic processes that maintain ecosystem structure, habitat, and populations. The Reach Planning framework emphasized system-wide environmental goals, implementation guidance to achieve objectives, considerations of scale and connectivity, and then identified a stepwise process for setting ecosystem restoration objectives that included: identifying unique characteristics, historic, existing, and future conditions, stressors, objectives, performance criteria, and indicators. Goals and objectives for condition of the river ecosystem are central to river management, and are linked to other elements of the reach planning framework. Understanding and restoring important ecosystem processes and functions will make the UMRS ecosystem more productive of native life forms and resilient to human and natural disturbances. Institutionalization of the process-based philosophy through Adaptive Management (AM) is important for long term project success and learning.

Session C-1

Natural Resources: Challenges and Solutions

Moderator: Ron Fisher

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Fisher grew up in northern Illinois in Kane County. He attended Michigan Technological University in Houghton, MI and graduated from the University of Wyoming in Laramie with a Bachelor of Science in wildlife management and conservation/biology in 1982. In 1993 he began his career with the US Fish and Wildlife Service as an assistant refuge manager at Two Rivers National Wildlife Refuge located near Grafton, Illinois. In 1998 Fisher transferred to the Illinois River NW&FR's where he is currently stationed as a Wildlife Refuge Specialist. The Illinois River refuge complex comprises three national wildlife refuges (NWR) including Chautauqua, Emiquon and Meredossia NWR's and has a total acreage of 12,163 acres and stretches along 124 miles of the Illinois River in west central Illinois.

Prior to working for the Service Ron began his natural resource management career with the US Forest Service, Medicine Bow National Forest on the Saratoga and Laramie Ranger Districts in south central Wyoming. He has also worked on various lake management projects with the US Army, Corps of Engineers, Kansas City and St. Louis Districts.

Stephen Havera

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Dr. Stephen P. Havera received a B.S. (1968) in Biology from Bradley University, and M.S. (1973) and Ph.D. (1978) degrees in Zoology from the University of Illinois. He served two years in the U.S. Army Military Police from 1968-1970. Dr. Havera joined the Illinois Natural History Survey (INHS) in 1972. His professional experience spans four decades culminating as a Senior Professional Scientist and Director of the Frank C. Bellrose Waterfowl Research Center and Forbes Biological Station. Steve remains active in the biological arena and maintains an Emeritus appointment with the INHS. Havera's research studies cover a wide spectrum of species and topics, but center upon ecology and population dynamics of waterfowl, forest wildlife, wetlands and physiological ecology. He published numerous scientific articles and technical reports and was exceptionally successful in acquiring extramural funding. During his career, he has been very involved with over 20 conservation organizations and served on numerous regional and national committees.

Havera has received numerous prestigious professional honors throughout his career, including the Wildlife Society's Book of the Year Award in 2000 for his book *Waterfowl of Illinois*, as well as the Wildlife Society's Professional Award of Merit from the Illinois Chapter and the North Central Section, and he was the first member to be named a Wildlife Society Fellow. Havera is known nationally for his work on the contentious waterfowl lead poisoning/nontoxic shot issue as well as his dedication to wildlife and their habitats. His work on wetlands has promoted the management, research and acquisition of critical habitat. He was relentless in his dedication to the restoration of Thompson Lake and the establishment of the Emiquon National Wildlife Refuge near Havana.

The Waterfowl Tradition in the Historic Illinois River Valley

Authors: S.P. Havera and M.M. Horath, Illinois Natural History Survey, Prairie Research Institute, University of Illinois, Forbes Biological Station & Frank C. Bellrose Waterfowl Research Center, P.O. Box 590, 20003 CR 1770 E., Havana, IL 62644

Historically, the Illinois River valley was among the most productive riverine systems in North America with respect to fish and wildlife populations. The numerous and generally shallow bottomland lakes, which flanked the river, hosted veritable gardens of aquatic vegetation. The aquatic plants and associated invertebrate fauna were central to the biological productivity of the Illinois River system. In the late 19th century, the Illinois River valley became renowned for the waterfowl populations frequenting its luxuriant wetlands during fall and spring migrations. As a result, a strong waterfowl tradition, including the establishment of private duck clubs, the development and use of duck calls and wooden decoys, and the pioneering of many waterfowl management practices, emerged and prospered in the valley. The Illinois River valley historically has been one of the most important migration areas for mallards in the United States. Leopold (1931) reported that 3 million ducks were observed resting at both Crane Lake and Clear Lake during the late 1920s.

Aaron Yetter

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Aaron Yetter is a waterfowl/wetlands ecologist with the Illinois Natural History Survey which is part of the University of Illinois' Prairie Research Institute. His office is located at the Forbes Biological Station & Frank C. Bellrose Waterfowl Research Center in Havana, IL. Aaron received his BS (1989) and MS (1992) degrees in Zoology from Southern Illinois University in Carbondale. Aaron's research interests include aerial surveys of wetland birds, energetic carrying capacity of wetlands for waterfowl, foraging thresholds of spring-migrating dabbling ducks, migration ecology of waterfowl, nesting ecology of waterfowl, foraging ecology of fall-migrating shorebirds, and wetland habitat characteristics of the Illinois River valley.

Historical and Contemporary Characteristics of Illinois River Valley Wetlands

Authors: A.P. Yetter, J.D. Stafford, M.M. Horath, R.V. Smith, and C.S. Hine. Illinois Natural History Survey, Prairie Research Institute, University of Illinois, Forbes Biological Station & Frank C. Bellrose Waterfowl Research Center, P.O. Box 590, 20003 CR 1770 E., Havana, IL 62644

The Illinois River was once one of the most productive streams in North America. However, the Illinois, like many large rivers in the Midwestern United States, has undergone significant alteration and degradation. Fortunately, efforts to restore and enhance wetlands in the Illinois River valley (IRV) are ongoing. To guide these restoration efforts and provide information on historical wetland habitats in the IRV, we compared wetland characteristics among 3 time periods; early historic (1938–1942), late historic (1943–1959), and contemporary (2005–2006). Average proportions of wetlands classified as bottomland forest, scrub-shrub, nonpersistent emergent, and mud flat were generally greater during 2005–2006 than 1938–1942 or 1943–1959, but proportions of aquatic-bed and floating-leaved vegetation declined significantly by 2005–2006. Additionally, we modeled wetland use by mallards (*Anas platyrhynchos*) and diving ducks (Tribe Aythyini) during falls 1950–1959 in relation to wetland characteristics. Proportions of wetlands classified as refuge and nonpersistent emergent and an interspersed-juxtaposition index (IJI, a measure of habitat spatial heterogeneity) positively associated with mallard use, whereas proportions of scrub-shrub and persistent emergent vegetation negatively influenced diving duck use. Mallards and diving ducks were both positively associated with wetland area. The loss of submersed and floating-leaved aquatic vegetation emphasized the need to restore diverse plant communities. Further, the composition and arrangement of wetland habitat (indicated by IJI) was an important attractant to migrating mallards and should be considered when planning and evaluating conservation efforts in the IRV once energetic goals are met.

Lyle Guyon

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Dr. Lyle Guyon has been working as a Terrestrial Ecologist for the National Great Rivers Research & Education Center (NGRREC) since 2005, where his activities are primarily focused on floodplain forest ecology and management in the Upper Mississippi River System (UMRS). Research and monitoring projects have included assessments of ecological characteristics of floodplain forests; the establishment of a long-term floodplain forest monitoring network in the UMRS; and extensive vegetation surveys conducted for the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service. Additional responsibilities include teaching an introductory natural resources and environmental sciences course at Lewis and Clark Community College and coordinating NGRREC's management of the Palisades Nature Preserve, which overlooks the Mississippi River near Grafton, Illinois.

Dr. Guyon received a PhD in Natural Resources and Environmental Sciences and MS in Forestry from the University of Illinois at Urbana-Champaign.

Illinois River Floodplain Forests - Past, Present and Future

The Illinois River was renowned for the diversity and productivity of its floodplain habitats, including forests, prairies, savannas, marshes, and wetlands. Particularly in the lower reach, the large river-floodplain ecosystem supported extensive floodplain forests comprising a mix of elm (*Ulmus*), hackberry (*Celtis*), cottonwood (*Populus*), willow (*Salix*), pecan (*Carya*), and even oak (*Quercus*). Subsequent widespread development of the Illinois River floodplain for agriculture and other uses resulted in the loss of a significant amount of natural floodplain habitat. In addition, changes to the hydrology of the system resulted in further declines in floodplain forest health and diversity, shifting dominance towards more flood-tolerant species such as silver maple (*Acer saccharinum*). Fragmentation of natural habitats has also adversely impacted a variety of wildlife and bird species that use the floodplain corridor.

This trend is not unique to the Illinois River, and is evident throughout the Upper Mississippi River System (UMRS). Management and restoration activities in the Illinois River floodplain should therefore be coordinated with systemic planning efforts in the UMRS. Consideration should be given to: conserving existing natural habitats; identifying and prioritizing areas for potential restoration; establishing a thorough set of information on baseline reference conditions; ensuring that representative communities of native flora and fauna are sustained in the system; and providing for continuous long-term monitoring at the project and system level to determine if goals are being effectively achieved.

Session A-2

Challenges of Changing Climate

Moderator: Eric Grimm

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Eric C. Grimm received his B.S in biology from South Dakota State University and his M.S. and Ph.D. in ecology, with an emphasis in paleoecology, from the University of Minnesota. His interests include historical development of modern ecosystems and response of ecosystems to climate change. He has worked extensively in the upper Midwest and the northern Great Plains. His recent work has focused on precise timing of vegetation change in northern Illinois at the end of the last ice age in relation to temperature changes observed in the Greenland ice cores and on developing an understanding of the climate forcing of this vegetation, which has no modern analog. Dr. Grimm is also the coordinator of the North American Pollen Database and is one of the two principal investigators of the international Neotoma Paleocology Database funded by the National Science Foundation Geoinformatics Program. These databases are critical scientific infrastructure for understanding long-term climate and ecosystem change, and they have been the basis of hundreds of scientific papers.

Richard Guyette

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Dr. Guyette is a Research Professor in the Department of Forestry at the University of Missouri. He has a BA in Anthropology, and a MS and PhD in Forestry from the University of Missouri. He has been researching and publishing on environmental history for over 30 years. His primary research technique is dendrochronology. He has used tree ring to date historic structures such as the Menard House, Kaskaskia, Illinois. Document changes in eastern North American fire regimes. Develop long-term records of the environmental chemistry of molybdenum, lead, soil pH, sulfur, and cadmium concentrations from the rings of trees. He has published on the response of tree and fish growth in rivers. His interests are in the history of wildland fire, long-term climate change in the Midwest, and wood in aquatic systems.

A 14,000 Year Midwestern Record of Climate from Riparian Oaks

Abundant subfossil oak trees (*Quercus bicolor*, *Q. macrocarpa*) are buried and preserved in floodplain sediments along hundreds of miles of streams in Northern Missouri and Southern Iowa and unknown reaches of other Midwestern streams. Growth records are being developed from the oak tree-ring chronologies of this subfossil wood. The wood is naturally excavated by stream meanders, collected, and carbon and tree-ring dated into annual growth ring chronologies spanning periods within the last 14,000 years. We discuss the uses of ancient oak wood in climate science and as wildlife habitat in muddy rivers.

Our most significant paleoclimate proxy is a precipitation signal in the width of the oak tree rings. We have identified three interesting paleoclimate dynamics from these long-term records of drought and oak growth 1) wet events that occurred for at least one century about 2,500 years ago, 2) significant 20 year and 128 year drought rhythms in the most recent 1000 years of record and 3) a 12,000 year long decline in the high frequency growth responses associated with Equatorial Pacific sea surface temperatures. The 2,500 year wet events are identified by wider rings, less year to year ring width variance, and the abundance of trees captured by the meandering rivers. The recent 1000 year annual record of drought has extended the length of the 20 year drought oscillation record documented by others in the Midwest by over 600 years. A millennium scale decline in growth variance is hypothesized to be due to weakening ENSO activity associated with long-term difference in the sea surface temperatures of the eastern Equatorial and western Tropical Pacific.

Jim Angel

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Dr. Jim Angel has been the State Climatologist for Illinois since 1997. He began work at the Illinois State Water Survey in 1984 after graduating from the University of Missouri-Columbia with a M.S. in atmospheric science. While at the Water Survey, he earned a Ph.D. from the University of Illinois in 1996. His interests include climate change and variability in the 19th and 20th centuries, extreme rainfall events, floods, droughts, heat waves and cold waves, Great Lakes storms, as well as climate services. He works with a wide range of clients, including students, teachers, homeowners, engineers, lawyers, other scientists, farmers, as well as federal, state, and local officials. In addition, he maintains a popular web site and blog on climate issues in Illinois.

The Illinois State Climatologist Office is located at the Illinois State Water Survey, a division of the new Prairie Research Institute, on the campus of the University of Illinois at Champaign-Urbana.

Past Climate Change in Illinois

Understanding past climate change in Illinois is important for placing in perspective both current conditions and possible future scenarios of climate change. Useful climate records for Illinois extend back to the middle of the 1800s. With those records, we can reconstruct past climate change in Illinois with regard to both temperature and precipitation. More recent data collections can provide insights on other forms of climate change. What this study finds is that Illinois has experienced past conditions that were significantly different from current conditions. These include periods of significantly colder, wetter conditions in the 1800s and warmer, drier conditions in the first half of the 1900s.

Jeffery Walk

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Jeff Walk is the Director of Science for the Illinois Chapter of The Nature Conservancy. He led development of the Illinois Wildlife Action Plan as a research scientist for the Illinois Natural History Survey, and recently completed a climate change update to the Wildlife Action Plan with his team at The Nature Conservancy. Dr. Walk and colleagues at the University of Illinois recently published their findings from the oldest bird survey in North America in the book, *Illinois Birds: A Century of Change*. Jeff also serves on the Board of Directors for Illinois Audubon Society and on the Illinois Endangered Species Protection Board.

Climate Change Vulnerability of Species in Greatest Need of Conservation: Implications for Aquatic Life in Illinois

Since the Illinois Wildlife Action Plan was developed in 2005, considerably more information on the potential threat of global climate change to natural and human systems has become available, as have strategies to increase resilience, increase adaptive capacity, and mitigate the effects of climate change. As part of an update to the Illinois Wildlife Action Plan, we rated the climate change vulnerability of 162 Species in Greatest Need of Conservation based on exposure, sensitivity, and adaptive capacity. Most species were evaluated in >1 watershed, resulting in 584 assessments. By grouping species by their relative risk and sensitivity factors, the vulnerability assessment helps to identify adaptation strategies likely to benefit several species.

High proportions of mollusks and fishes were rated Extremely Vulnerable or Highly Vulnerable to climate change. Intermediate numbers of amphibians and insects, and few reptiles, birds or mammals were rated as Extremely Vulnerable or Highly Vulnerable to climate change. Vulnerable species tended to be associated with headwater streams or ephemeral wetlands, and face significant natural or anthropogenic barriers to dispersal. The large rivers of Illinois, and the concentrations of natural land cover lying along them, are staged to be important corridors for species migrations. Climate change will tend to amplify the effects of other threats (e.g., altered hydrology, water quality, invasive species), and efforts to alleviate these non-climate stressors need to be redoubled to increase resilience of aquatic life to changing conditions.

Session B-2

Federal Ecosystem Restoration Programs: Opportunities to Enhance National Recognition

Moderator: John T. Ortlieb

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John Ortlieb's planning, policy and project experience with the U.S. Army Corps of Engineers began in June of 2009 and includes work in all stages of civil works projects. He is currently a member of the 2011 USACE Planning Associates Program which has opened the doors to all of the various business lines and D.C. level management.

Before the Corps, Ortlieb was an environmental manager at RKI for 6 years developing infrastructure projects such as the \$2.1 billion SH 130 from Austin to San Antonio. He also worked for the City of Austin for 4 years as an environmental investigator reviewing site plans & inspecting sites for compliance.

Other work includes the U.S. Army as a Forward Observer in the 3rd ID and 1st Cav after which he attended W.I.U. and earned his B.S. and M.A. in Geography. During graduate work he was a teaching assistant in meteorology and took two internships; the first in San Antonio working for the TCEQ in the Edwards Aquifer Protection Program and the second as the Watershed Coordinator for the Illinois Pilot Watershed Study, the Court Creek Watershed.

Grant Casleton

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Grant has been the Director of Planning & Development for the Oswegoland Park District for 22 years. He is responsible for working with developers in the planning and design of future park land in new residential developments. He also manages the planning department which is responsible for the planning, design and development of all park and recreational facilities for the district. The Oswegoland Park District encompasses 38 square miles including Oswego, and parts of Aurora, Plainfield, Montgomery and unincorporated Oswego Township. The District has 49 parks within its 945 acres and serves a population of 50,000.

Grant has been involved in several projects with USACE and IDNR restoring stream bank erosion, removing dams, installing riffles and lunkers for fish habitat on Waubensee Creek. Grant's previous work experience also includes the Illinois Department of Transportation, Downers Grove Park District and Illinois Department of Natural Resources.

Grant received a Bachelor of Landscape Architecture degree from the University of Illinois and is a licensed landscape architect in both Illinois and Michigan.

Waubonsie Creek Fish Passage: Oswegoland Park District Perspective

In early 2000, the Rock Island District of the U.S. Army Corps of Engineers initiated the "Waubonsie Creek Restoration Project" feasibility study. This study was a component of the Illinois River Ecosystem Restoration Feasibility Study and Section 519 - Illinois River Basin Restoration.

In August 2009, Corps and state funding became available to implement the restoration practices as outlined in the study, and the Corps and the Illinois Department of Natural Resources contacted the Oswegoland Park District to coordinate the project. Stonegate Park, Pfund Park, Fox Bend Golf Course as well as private property along the Waubonsie Creek were targeted for this critical restoration project which focused on restoring the aquatic habitat, providing fish passage, restoring connectivity and increasing the in-stream habitat. Improvements included construction and/or modification of in-stream riffles and rock ramps, notching existing dams, removing excessive debris and installing stream bank protection measures. This presentation will discuss the role of the Oswegoland Park District as a landowner and important stakeholder in the project, the collaboration of the three agencies, as well as an overview of the project itself. The experience and outcome were positive, and the project benefitted the creek, the watershed, and the community.

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Jennifer Clarke is an Environmental Protection Specialist at the Illinois EPA. She works in the Bureau of Water, Watershed Management Section, Planning Unit, in the Total Maximum Daily Load (TMDL) Program. As TMDL project manager, she supervises TMDL development in many areas of the state. Current TMDLs include the DuPage River/Salt Creek, the Chicago River and the Illinois River (Peoria Area). One of her current projects is the development of a septic map in a TMDL subwatershed that includes an education component for owners of septic systems. She also develops the 303(d) list of impaired waters and prioritization schedule for the State of Illinois Integrated Water Quality Report. Ms. Clarke also performs various GIS mapping and analysis projects for the Bureau of Water including basin maps for the Integrated Report and the NPDES facilities. She holds a B.S. and M.S. in Biological Sciences from the University of Illinois at Springfield.

Chris Urban

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Illinois River Total Maximum Daily Loads (Peoria Area): Focusing on Implementation in a Local, State and Federal Partnership

Illinois EPA, Tricounty Planning Commission and US EPA have been working on a State-lead total maximum daily load (TMDL) analysis, that includes 3 segments of the Illinois River mainstem, direct tributaries and two backwater lakes of the Illinois River in the Peoria Area.

The TMDL is part of a unique partnership with local, State and Federal partners, to include a load reduction strategy in a TMDL for more integrated implementation. The design of the TMDL has been created in cooperation with local partners such as the Tricounty Planning Commission and the City of Peoria, as well as Illinois DNR, USGS, and other local and state groups. Several contaminants of interest without numeric criteria, such as sediments, have been added to the project for analysis. Analysis of the sources, delivery and control of these contaminants will result in a watershed plan called a Load Reduction Strategy, to give the local area a blue-print for addressing problems in tandem with implementing the load reductions in the TMDL. The final plan will integrate the results of the analysis with local, State and Federal actions on the ground for greater efficiency in restoring watershed health.

Hank DeHaan

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Hank DeHaan obtained a Master's Degree in Geography from the University of Wisconsin-Madison with an emphasis in fluvial geomorphology and GIS and is a certified Project Manager. For almost twenty years he has used his education and training to manage Mississippi and Illinois River projects. Early in his career Mr. DeHaan performed research and authored reports as a physical scientist for the U.S. Geological Survey. For the past nine years he has worked for the U.S. Army Corps of Engineers (USACE) as a Project Manager for flood damage reduction and environmental restoration projects located throughout the Mississippi River Basin. Additionally, Mr. DeHaan is the lead Flood Area Engineer for twenty levee districts in the Quincy, IL area and serves as the USACE lead for the Illinois Flood Risk Management Team.

Illinois Flood Risk Management Team

The Illinois Flood Risk Management Team (IL FRMT) formed in 2008 in response to major Mississippi River flooding that caused significant damages throughout the Midwest that year. This team was stood up to improve multi-agency coordination of flood preparedness, emergency response, recovery, and mitigation efforts. The primary goal of the IL FRMT is to reduce risk of flood damages and loss of life throughout the State of Illinois.

This team of State and Federal agencies (i.e., IL DNR, IEMA, FEMA, USACE, NWS, NRCS, USGS, etc.) meets regularly and partners in efforts to improve flood preparedness, risk education, response, and recovery. They have formed a “one-stop shop” for the public to more efficiently and effectively offer assistance. As issues come up (e.g., community impacted by flood) the team develops joint-agency strategies to better address the impacts and explore structural and non-structural solutions to reduce future risks and minimize repetitive damages. The team also reviews agency processes to identify ways to improve our service to the public and has prepared recommendations that are currently under review in Washington DC.

During the flooding in 2011, team members communicated daily to more quickly answer questions about flood forecasts, risk, and preparation. Team meetings focused on improving communication and jointly developing information to enhance flood preparedness efforts. Several products were developed by the team and communicated to the public including enhanced flood forecast information, condition of local levee systems, highly accurate inundation maps, and critical levee elevations. Team members partnered in setting up workshops to share this information with river communities. These workshops were well attended by area communities and resulted in the public more clearly understanding their flood risks and how they could work with State and Federal agencies to prepare for and respond to flooding.

Session C-2

Natural Resources: Challenges and Solutions

Moderator: Marc Miller

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Marc Miller is dedicated to making a positive change in Illinois' natural resources and conservation. Marc has advanced ecosystem, habitat and watershed-based restoration and promoted Illinois' potential for recreation opportunities. Marc continually works with leading environmental, recreation, hunting and fishing groups throughout the state.

- Director, Illinois Department of Natural Resources, May 2009 to Present
- Acting Director, Illinois Department of Natural Resources, February 2009 to May 2009
- Senior Policy Advisor and Liaison to the Illinois River Coordinating Council, Office of Lt. Governor, Pat Quinn, June 2004 to February 2009
- Watershed Organizer – Prairie Rivers Network, March 1999 to May 2004

Miller earned a BA in Political Science in 1991 from Eastern Illinois University and a MA in Environmental Administration in 1996 from University of Illinois, Springfield.

Michael A. McClelland

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Mike is currently a Natural Resource Specialist with the Illinois Department of Natural Resources as part of the Aquatic Nuisance Species Program. Mike served 11 years with the Illinois Natural History at the Illinois River Biological Station as the Long-Term Illinois River Fish Population Monitoring Program coordinator/PI. Mike received his BS in Biology/Zoology (1996) and MS (2005) Biology/Aquatic Ecology from Western Illinois University. Mike is a member of the American Fisheries Society, the Illinois Chapter of the American Fisheries Society, and the Mississippi River Research Consortium and his research interests include large river ecology, fish population dynamics, aquatic nuisance species impacts, and population trends of Illinois River fishes.

The Long-Term Illinois River Fish Population Monitoring Program, 1957-2010

The Illinois River was once known to be an exceptionally productive large floodplain river, especially with regards to its fish community. Many factors such as sewage disposal, levee construction, and increased sedimentation rates have crippled fish productivity. Fishes of the Illinois River have been monitored since 1957 through the Long-Term Illinois River Fish Population Monitoring Program (LTEF). Fish data has been collected annually at 27 sites in six navigation reaches of the Illinois River by AC electrofishing. We examined LTEF fish collections over all sampling years to test for spatial and temporal trends in catch rates, fish species richness, and community composition. We collected 205,679 fishes representing 98 fish species (and seven hybrids) from 17 families resulting in a catch rate of nearly 206 fish per hour of electrofishing. Native fish species richness has increased over time and community analyses revealed changes in fish species composition from a community dominated by Common carp (*Cyprinus carpio*) and Goldfish (*Carassius auratus*) to one of greater species richness. Prior to 1976, abundances of native fish species were declining significantly, but since have shown a significant increase. Abundances of non-native species declined from 1957-2000; however, rapid population growth of Asian carps (*Hypophthalmichthys* spp.) into the Illinois River increased non-native fish species catches. Many of the trends observed may reflect positive effects of rehabilitation efforts throughout the Illinois River. Our collections highlight the importance of long-term monitoring programs to detect changes in fish populations over multiple decades and the success of our program has prompted a recent expansion of monitoring effort that includes randomized pulsed-DC boat electrofishing in the Illinois, Mississippi, Ohio, and Wabash rivers.

Tharran Hobson

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Tharran was raised on the Illinois River and has spent over 18 years of his professional life working on river restoration efforts beginning with the US Fish and Wildlife Service's Illinois River Refuge System. In 1999 he joined The Nature Conservancy's Illinois River Program as a Land Steward. His current focus as Illinois River Program Restoration Manager is the design and implementation of various floodplain habitat restoration measures at The Conservancy's Merwin Preserve at Spunky Bottoms and Emiquon Preserve as well as providing technical support to partner agencies within the River watershed.

Documenting the results of large-scale restoration efforts is vital to understanding and replicating positive results and thus he has been a principle or supporting investigator on such research as breeding bird use of restorations, water quality, small mammal colonization, and mussel propagation. His professional affiliations include President of the LaMoine River Ecosystem Partnership, Friends of the Illinois River, Illinois River Coordinating Council Working Group, Boltonia decurrens Recovery Plan Implementation Team, Freshwater Mollusk Conservation Society, and the UMRCC Mussel Ad Hoc Committee.

Tharran graduated from Illinois College and attended graduate studies at Western Illinois University in Zoology. He is also a certified Prescribed Fire Manager.

Captive Propagation as a Tool for Restoring Illinois River Mussel Diversity

Historically the Illinois River was one of the most productive mussel streams per mile in North America. Today in Illinois, a greater proportion of freshwater mussels are considered "Species In Greatest Need of Conservation" (29 of 61; 48%) than any other taxonomic group; an additional 19 species are extinct or extirpated (Illinois Wildlife Action Plan). Approximately 49 species of freshwater mussels have been documented from the Illinois River (IR), but fewer than half are still present. The butterfly mussel, *Ellipsaria lineolata*, formerly widely distributed in the IR, has been mostly extirpated from the river. The species is of special concern in the state and is listed in the Illinois Wildlife Action Plan. The reported fish hosts (freshwater drum) for the butterfly, necessary for completion of the unionid life cycle, are present and abundant in the river. This mussel's elimination from the IR has been attributed to siltation and poor water quality. Recent studies indicate that some species of freshwater mussels have begun to recover as conditions in the IR improve. To reintroduce butterfly, or other extirpated species, to the IR requires a means of reestablishing a source population. In 2008, through the State Wildlife Grant Program, partners from The Nature Conservancy, IDNR, and USFWS began experimenting with captive propagation techniques along the IR. The intent is that with adequate water quality and the necessary fish host for completion of the mussel's life cycle, mussels which have been extirpated could be reestablished, restoring some of the mussel diversity formerly characteristic of the IR. Propagation modeled after *Lampsilis higginsii* (Higgins Eye) efforts on the Mississippi, should be refined with other species in other systems...and evaluated as an effective conservation action (IWAP).

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Kevin has been a large river ecologist at the Illinois Natural History Survey's Illinois River Biological Station as well as a fisheries specialist for the Long-Term Resource Monitoring Program, since 1991.

In 2010, Kevin was employed by the Illinois Department of Natural Resources as the Aquatic Nuisance Species Program Manager as well as the Aquaculture Program Manager. Duties include managing and coordinating efforts with State and Federal partners to prevent Asian carps from getting access to the Great Lakes and establishing populations there, as well as implementation of the Illinois State Comprehensive Management Plan for Aquatic Nuisance Species.

Challenges of Nonnative Fishes in the Illinois River

There are a host of non-native fishes have been present through the years with many not establishing; however, the trend of fishes being detected is a concern. In addition to the Asian carps, long term monitoring of the Illinois River has shown introductions and establishment of round goby (*Neogobius melanostomus*) and white perch (*Morone americana*) in the last 20 years.

Non-native Asian carp (bighead carp *Hypophthalmichthys nobilis*, silver carp *Hypophthalmichthys molitrix*) have been present in the Illinois River since the mid 1990's. Illinois Department of Natural Resources is active in monitoring, removal, and management of Asian carp species within the state. Cooperation with Federal and State partners are critical in the efforts to understand the threat and distribution of these invasive fish and further prevent upstream movement into the Chicago Area Waterway System (CAWS) and possibly from there into the Lake Michigan basin. A summary of this monitoring to date suggests, very few Asian carps may be present in the CAWS and the electrical dispersal barrier is an effective Asian carp deterrent. Downstream efforts to remove Asian carp, and lessen the threat to the CAWS, have been highly successful. The ongoing effort with Asian carp highlights the need for concern and consistent management in Illinois, across the region (i.e. Mississippi River and Great Lakes basins) and national levels.

Session A-3 ---

Illinois River History and Chicago River Separation Study

Moderator: Arlan Juhl

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Mr. Juhl graduated from Iowa State University in Ames, Iowa with a Bachelor of Science degree in Agricultural Engineering in 1973. He has worked for the Office of Water Resources since July of 1973 in various capacities, including permit inspections, watershed planning, hydrologic and hydraulic modeling, project formulation and project management. Most of his work has addressed the needs of flood damage reduction, while also performing work to manage the natural resources of Illinois. He is currently the Director of the Office of Water Resources.

Mr. Juhl is a member of American Society of Civil Engineers, American Society of Agricultural and Biological Engineering, Illinois Association of Flood and Stormwater Management, and serves on the National Association of Flood and Stormwater Management Agencies Board.

He has received the John Powell Award from the U. S. Geological Survey for work in support of streamgaging and data collection, and received the Lake County Stormwater Manager of the year in 2010 for Fox Chain of Lakes Operations and communications.

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William (Bill) White is a Geomorphologist and Principle Investigator working in the Center for Watershed Science at the Illinois State Water Survey (ISWS); a Division of the University of Illinois' Prairie Research Institute. Bill served in this position since 2003. Bill previously served for over 23 years at the Illinois Department of Natural Resources' Springfield headquarters serving as Science Advisor to IDNR's Director of Planning and Environmental Sciences. Bill manages operations, planning, research, and grants and contract funding and directs the State Water Survey's Stream and Watershed Assessment & Restoration Program. Bill is author of dozens of articles, presentations, and contract reports.

History of Changes in the Illinois River System and Implications for Current Management

History is learning by inquiry. In this case the inquiry is “How did the Illinois River waterway and watershed progressively evolve into today’s geomorphological landscape?” and “What are the important management implications?”

The Illinois River mainstem and watershed has had a relatively short but dynamic physical history and subject to a high degree of anthropogenic influence. The geomorphological landscape of the Illinois River mainstem and watershed evolved under the influence of natural physical perturbations. Some geological and hydrological events are rare yet some events systematically happened or recurred through time as indicated in the geologic and biologic record. More recently both large and small scale anthropogenic influences altered the Illinois River waterway and watershed even further.

Anthropogenic influences are recent but very often natural response to human activities can be intense and present difficult challenges for us to efficiently and effectively manage many components of our infrastructure. For example many segments of pipeline, bridge abutments, drainage structures, roads and railroads, fences, etc... are being either buried by sediment or, more commonly, exposed by erosion to additional chemical and physical weathering and subject to premature function loss.

Naturalizing the geomorphological landscape is a major task in restoring the Illinois River mainstem and watershed. Understanding the history of changes and the resultant natural responses in the fluvial and watershed system is one important step towards advancing the restoration goal. Advancements in modern technologies and society have become so complex that traditional analytical ways and means are not sufficient any more but approaches of a holistic or systems, and generalist or inter-disciplinary nature is necessary. Now there is the spectrum from highly sophisticated mathematical theory, to computer simulation where variables can be treated quantitatively but analytical solutions are lacking, to more or less informal discussion of problems of a system nature. Management approaches may vary in the future as we learn more about climate change, hydrological trends, and preferences for naturalizing and managing the landscape.

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Scott is a Senior Fisheries Biologist and Project Manager with HDR. Prior to joining HDR he had been with the Illinois Department of Natural Resources for 21 years serving as Hatchery Manager at Jake Wolf Hatchery until 1994, then accepted a Field Management Supervisor position overseeing the then “Southern Region” that ultimately resulted in statewide supervision with the retirement of the Northern Field Management Supervisor. When the IDNR was re-aligned into regional based operations, Scott assumed the Federal Environmental Projects Coordinator position working with the US Army Corps of Engineers and the Environmental Management Program. In 2003, Scott assumed the duties of Fisheries Chief for the Division of Fisheries until January 2007 at which time he came to HDR.

As a Project Manager, Scott has overseen projects as far ranging as evaluating a commercial catfish operation next to the Salton Sea in California, to conducting a study to determine options for reducing the risk of spiny waterflea spread in New York, to development of a biosecurity workshop for the hatcheries of Illinois through Southern Illinois University. Just like the many varied projects he has worked on, Scott has been around as well, working for the Indiana Department of Natural Resources after graduating from Kansas State University and then moving back to Kansas to work for the Fish and Game Commission until 1986 when he moved to Illinois.

Envisioning a Chicago Area Waterway System for the 21st Century – A Separation Study

In 1887, when Rudolph Hering proposed the idea of reversing the flow of the Chicago River from Lake Michigan to the Illinois River, it was considered a bold engineering feat. Reversal of the river’s flow and creation of the Chicago Area Waterway System (CAWS) separated the drinking water and wastewater systems of Chicago and helped combat the serious health challenges that plagued a growing region. Following implementation of the plan, the CAWS has been referred to as one of the engineering wonders of the world.

After 100 years of successful operation, a new challenge is facing the CAWS and the Great Lakes—the movement of invasive species between the Mississippi River and Great Lakes Basins. More than 180 non-native aquatic species have become established in the Great Lakes, causing economic losses estimated at \$5.7 billion annually. Asian carp are the latest—and potentially the most damaging—aquatic invasive species (AIS) poised to enter the Great Lakes, via the Illinois River.

The Great Lakes Commission (GLC) and the Great Lakes and St. Lawrence Cities Initiative (Cities Initiative) selected HDR to conduct a 12-month study to develop and evaluate scenarios for separating the Mississippi River and Great Lakes basins. The study will focus on the historic CAWS system with goals of preventing further interbasin transfer of AIS. Under HDR’s leadership, this study will advance two strategic objectives:

- Evaluate the economic, technical, and ecological feasibility of separation by illustrating probable scenarios and associated costs, impacts and potential benefits of a re-engineered hydrologic system for greater Chicago.
- Support and complement the U.S. Army Corps of Engineers mandated work to evaluate all aquatic connections to the Great Lakes by defining, assessing, and vetting scenarios for separation.

Gary R. Clark

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Mr. Clark started his career as a civil engineer with the State of Illinois Department of Natural Resources, Office of Water Resources in 1974. On July 1, 2003, Mr. Clark was appointed as the Director of the Office of Water Resources and retired from that position and state service on December 31, 2010. During his career with the Office of Water Resources, Mr. Clark has served as the Chief of the Planning and Research Section and as manager of the Division of Program Development. During his career, his areas of professional responsibilities included the administration and conduct of research and planning in the areas of instream flow protection, statewide water supply management, groundwater modeling, drought management, groundwater and surface water law and state water planning. Mr. Clark is a graduate of the University of Wisconsin, with a B.S. Civil Engineering in 1972, and a M.S. in Civil and Environmental Engineering in 1974. He is a licensed Professional Engineer in the State of Illinois and Wisconsin. In June of 2005 Mr. Clark was credentialed as a Diplomate, Water Resources Engineer by the American Academy of Water Resources Engineers. Mr. Clark has authored publications and papers on groundwater law, water supply management, groundwater modeling and instream flow protection. He has participated actively in the drafting of Illinois statutes for groundwater quality and quantity management. Mr. Clark serves as the State of Illinois representative to the Upper Mississippi River Basin Association, the Ohio River Basin Water Resources Association. In 2009, he was appointed by Governor Quinn as Illinois' Representative to the Great Lakes Compact Council. He also served as the Chairman of the State Water Plan Task Force and has served as president of the Illinois Groundwater Association and the Illinois Section of the American Water Resources Association.

Historical Overview of the Development of Illinois Water Law in the Illinois River Basin

The evolution of Illinois water law follows the rich history of development and conflict in the Illinois River Basin over the last century and a half. A review of this history helps to explain Illinois water law as we know it today and should further help to the guide response of resource managers and water professionals as they respond to the future management needs of this diverse river system. The definition of navigable waters, public waters and public trust are all rooted in the history of development of the Illinois River, Illinois Waterway and the diversion of Lake Michigan water into this river system.

Session B-3

Nutrient Management in Rural Landscapes

Moderator: Jean Payne

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Jean is President of the Illinois Fertilizer & Chemical Association, which represents over 1100 members of agricultural input supply and service industry. The IFCA office is headquartered in Bloomington, Illinois.

She is involved in the management of the Association, including oversight of regulatory and legislative issues that impact the industry. Jean is also responsible for promoting membership, facilitating the communication of issues that affect IFCA members and organizing the annual IFCA winter Convention and Trade Show and summer Midwest Ag Industries Equipment Exposition.

Jean received a B.A. in English from Illinois State University. She has served on Board of Directors for the Ag Retailers Association and The Fertilizer Institute in Washington D.C. and the Mid America Crop Life Association. She is a member of the College of Agriculture Advisory Committee for both the University of Illinois and Southern Illinois University. She also represents the fertilizer and chemical industry on Illinois Attorney General Lisa Madigan's ag advisory committee.

Jean and her husband Rae reside in Bloomington, Illinois.

Eric W. Schenck

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Eric W. Schenck is the Regional Biologist for Ducks Unlimited (DU) with responsibility for delivering DU's wetland and waterfowl conservation mission in Illinois. He administers a conservation program with an annual budget of approximately \$1 million featuring several land acquisition and wetland restoration projects along the Illinois River. Mr. Schenck has a B.S. in Wildlife Management from the University of Idaho and a M.S. in Forest Science from Yale University. He is a native of Fulton County and grew up on a family farm near Canton.

Upper Peoria Lakes Wetland and Water Quality Project

The Illinois River valley is an important migration corridor for waterfowl in the Mississippi flyway. Upper Peoria Lake is a significant staging area for ducks that migrate through the Illinois River valley. Sediment and nutrient run-off from agricultural lands surrounding Upper Peoria Lakes has adversely impacted local wetland habitat upon which migrating ducks depend and contributes to hypoxia problems in the Gulf of Mexico.

In 2010, the Natural Resources Conservation Service (NRCS) approved a \$2.4 million federal allocation for the Upper Peoria Lakes Wetlands Reserve Enhancement Program (WREP) as part of the multi-year Mississippi River Basin Initiative. The goal is to reduce nitrogen run-off by restoring and protecting up to 500 acres of frequently flooded cropland within the Lower Illinois River-Lake Senachwine watershed through WREP easements. Ducks Unlimited (DU) is a co-sponsor and partner of NRCS in the delivery of Upper Peoria Lake WREP projects.

Wightman Lake, a previous wetland restoration project completed by DU in 2009, serves as a prototype for multi-purpose wetland and water quality projects under the Upper Peoria Lake WREP. Such wetlands are designed to capture run-off from tributary streams and to remove excess sediment, nitrogen and other pollutants before the water enters the Illinois River. The wetlands also provide high quality fall and spring migration habitat for ducks.

To date, one landowner family has enrolled 83 acres in the Upper Peoria Lake WREP. Several others have indicated some interest as well. Easement rates, land eligibility criteria, and the willingness of NRCS to accept "non-standard" wetland restoration practices are likely to determine the future success of this program in the Upper Peoria Lakes area.

Suzy Friedman

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Suzy Friedman, Deputy Director, Working Lands, Environmental Defense Fund. Suzy earned her MS in Environmental Science and Policy from Johns Hopkins University and her BA in History and Environmental Studies from Princeton University. She has worked in the Washington, DC Office of EDF since January 2001. Suzy leads EDF's work to advance economically viable initiatives to improve water quality and ecosystem resilience through collaboration with agriculture, including working on the On-Farm Network and developing strategies for effective placement of wetlands and other natural filters while minimizing land removed from productive agriculture. Suzy's work with EDF is of particular interest to the Ag Community because of her influence with multiple national committees; including Member, EPA Farm, Ranch, and Rural Communities Advisory Committee; Member, Field to Market; Member, Chesapeake Bay Program Agricultural Nutrient and Sediment Reduction Workgroup; Member, NRCS State Technical Committees of Virginia, Maryland, and Pennsylvania.

Adaptive Management of Nutrients for Economic and Environmental Benefit

Agriculture is a critical industry in Illinois, but also a significant contributor to nutrient impairment. Nitrogen loss is not due to lack of effort by farmers, however, but the lack of information to evaluate how well management practices are working or to fine-tune average recommended rates to specific farm conditions. Without information to evaluate and adjust, getting the right rate, timing, form, and placement (4Rs) is almost impossible.

The On-Farm Network (www.agtechonfarm.net) offers an effective strategy to figure out what the 4Rs are for a given farm. This initiative uses infield sampling, aerial imagery, and strip trials to help growers improve management – benefiting the environment and profitability. The program is both scalable and easily integrated into existing watershed projects to deliver real and documentable benefits.

Session B-3

Maria Lemke

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Maria received her bachelor's and master's degrees from the University of Oklahoma, where she studied the response and recovery mechanisms of aquatic insect communities to flooding and drying disturbances. She earned her Ph.D. from the University of Alabama where her research focused on population and production dynamics of wetland microcrustaceans. After moving to Illinois in 1999, Maria worked for several years at the Illinois Natural History Survey in Havana, Illinois, monitoring larval fish and zooplankton production in backwater lakes on the Illinois River. She has been with The Nature Conservancy for the last 9 years, working with partners to quantify the effectiveness of various agricultural conservation practices in the Mackinaw River watershed and conducting wetland research at Emiquon Preserve in central Illinois. Additional research activities include quantifying diversity and secondary production of aquatic invertebrates in floodplain and backwater habitats along the Illinois River.

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Rick is the Superintendent of Water Purification for the City of Bloomington, Illinois water treatment plant. Rick has overseen the City's watershed and lake management efforts since 1994. Prior to joining the Bloomington Water Department, Rick worked at the Illinois State Water Survey Peoria Field Office.

Targeted Implementation and Evaluation of Constructed Wetlands to Reduce Agricultural Nutrient Exports and Improve Drinking Water Quality in Sub-watersheds of the Mackinaw River, Illinois

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Research in the Mackinaw River has shown that intensive outreach can significantly increase implementation rates of conservation practices. However, these practices have not historically been implemented to remediate nutrient export from agricultural fields that enter freshwater systems through subsurface drainage tiles. Like much of the Midwest, landuse in the Mackinaw River watershed is primarily row crop agriculture with drainage patterns extensively modified using subsurface tiles. We are testing the effectiveness of constructed wetlands at intercepting and reducing nutrient export from agricultural drainage tiles. Research questions include: (1) optimum placement of wetlands on the landscape, (2) watershed to wetland area ratio required for wetlands to effectively intercept and retain tile water and reduce nutrients, and (3) how to implement watershed-scale conservation. A hydrologic model, developed for two subwatersheds in which we are currently working, identifies strategic locations where wetlands and other conservation practices will most effectively reduce nutrient export. Cumulative 4-year data from our research site near Lexington, Illinois, show that constructed wetlands representing 3-9% of effective drainage areas averaged 19-48% and 47-57% reductions in nitrate and dissolved phosphorus loadings, respectively. We are initiating an innovative partnership model that leverages Farm Bill programs to demonstrate the effectiveness and efficiencies of constructed wetlands at removing nitrate to improve drinking water quality in Lake Bloomington which receives its water from an agricultural subwatershed of the Mackinaw River. Agricultural tile drainage has been identified as the major source of nitrate to the lake, which historically exceeds drinking nitrate water standards of 10 ppm for nitrate-nitrogen. We will develop a coordinated outreach and targeted implementation strategy to encourage adoption of constructed wetlands that provides a turn-key process of constructing wetlands to treat tile drainage. As such, this project will demonstrate a replicable, targeted process with wide applicability in tile-drained agricultural watersheds.

Monitoring I: Nutrients

Moderator: Debbie Bruce

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Debbie Bruce has worked for the Illinois Department of Conservation for 17 years and is currently the Chief of the Private Lands and Watersheds Division in the Office of Resource Conservation. She has held several positions during her 17 year tenure with Department, beginning in the Division of Fisheries as the Program Section Manager overseeing the Lake Michigan, Big Rivers, Streams, Contaminants, and Commercial Fisheries programs. Her main responsibilities have been the development and Implementation of ecosystem and watershed programs that address both environmental and economic issues. Her Division oversees the state side of the Illinois Conservation Reserve Program (CREP), Partners for Conservation, the Illinois River Basin Restoration Program, Ecosystem Restoration Projects with the US Army Corps of Engineers, the Conservation Stewardship Program, and the new Illinois Recreational Access Program. Debbie holds a Bachelor of Science Degree in Biology and a Master of Arts Degree in Environmental Science from the University of Illinois.

Laura Keefer

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Laura Keefer is a Fluvial Geomorphologist at the Illinois State Water Survey and been there for 25 years. Her current research interests focus on the processes of erosion and sedimentation. She also directs the Illinois Benchmark Sediment Monitoring Program (BSMP) activities and data analyses. Laura has conducted several hydrologic, sediment, and nutrient investigations around the state which includes the Upper Sangamon River (Lake Decatur) and Cache River Basin watersheds during most of her career at the Water Survey.

Lake Decatur Watershed - 15 Years: Nitrates and Trends

Lake Decatur is the water supply reservoir for the City of Decatur. The reservoir was created in 1922 by constructing a dam to impound the flow of the Sangamon River which was modified in 1956 to increase the maximum capacity of the lake to 28,000 acre-feet. The lake receives water from the 925-square-mile watershed of the Upper Sangamon River that includes portions of seven counties in east-central Illinois. Since 1980, Lake Decatur has high nitrate-N concentrations which have been consistently exceeding safe drinking water standards. From 1993 through 2008, the Illinois State Water Survey monitored the Lake Decatur watershed for stream discharge, nitrate-N concentration, and nitrate-N yield for the purpose of collecting reliable scientific data for use by city planners and resource managers to develop watershed management alternatives to manage the current and future city water supply. In June 2002, the City of Decatur brought on line an ion exchange facility at the South Water Treatment Plant to remove nitrate-N from the drinking water.

In summary, eight of the 15 water years experienced above or extremely above normal precipitation, making this a relatively wet period. Based on the 100-year streamflow record at the Monticello streamgaging station, 4 of the top 11 total annual discharges occurred during the monitoring period. The annual mean nitrate-N yield delivered to Lake Decatur from the Upper Sangamon River watershed varied from 6 to 42 lb/acre. Nitrate-N concentrations and yields generally decreased as drainage area increased, were dispersed throughout the watershed, and varied from year to year. During the 15-year monitoring period, there were no significant trends in discharge and nitrate-N yields for all stations. The Monticello station had the only statistically significant increasing trend in nitrate-N concentration, whereas all other stations had no trend.

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Dr. Demissie is Director of the Illinois State Water Survey, a division of the Prairie Research Institute at the University of Illinois at Urbana-Champaign, Illinois. He is responsible for leading and managing over 200 professional and support staff that are engaged in data collection, research and public service in the field of water and atmospheric resources. His long-term research at the Water Survey has focused on problem solving in the general area of watershed science with emphasis on watershed processes and restoration. He has conducted research addressing issues such as ecology of large rivers; stream flow hydraulics; erosion and sediment transport; lake sedimentation; hydrology and hydraulics of floods; and hydrology of wetlands. He has published over 150 journal articles, reports, and conference proceedings.

Dr. Demissie received his B.S. degree in Civil Engineering from the University of Iowa, and M.S. and Ph.D. in Civil Engineering from the University of Illinois at Urbana-Champaign.

Dr. Demissie is a registered Professional Engineer in Illinois. He is a Fellow of the American Society of Civil Engineers and a Diplomat of the American Academy of Water Resources Engineers. He is also a member of the International Water Resources Association, and the International Association of Hydrological Sciences.

Illinois River Conservation Reserve Enhancement Program: Sediment and Nutrient Delivery Assessment

The Illinois River, a tributary of the Mississippi River, is the most important river in the State of Illinois and drains nearly half of the state. The ecology of the river was severely degraded for several decades due to sedimentation and water quality problems. The water quality of the river has improved since the 1970s when environmental regulations were enacted in the United States. However, problems associated with erosion and sedimentation have continued to degrade the ecosystem. To address this major problem, a joint federal/state program known as the Illinois River Conservation Reserve Enhancement Program was initiated in 1999. The goal of the Illinois River Conservation Reserve Enhancement Program (CREP) is to improve water quality and wildlife habitat in the Illinois River basin. Based on long-term data and research, the two main causes of water quality and habitat degradations in the Illinois River were sedimentation and nutrient loads. To address these issues, the two main objectives of the Illinois River CREP are: Reduce the amount of silt and sediment entering the main stem of the Illinois River by 20 percent; and reduce the amount of phosphorous and nitrogen loadings to the Illinois River by 10 percent.

To assess the progress of the program towards meeting the two goals, the Illinois Department of Natural Resources (IDNR) and the Illinois State Water Survey (ISWS) have been developing a scientific process for evaluating the effectiveness of the program. The process includes data collection, modeling, and evaluation. The monitoring and data collection component consist of a watershed monitoring program to monitor sediment and nutrient for selected watersheds within the Illinois River basin and also to collect and analyze land use data throughout the river basin. The data collected at the CREP monitoring stations and long-term data collected by the Illinois Environmental Protection Agency and the U.S. Geological Survey is being used in evaluating the trends in sediment and nutrient delivery to the Illinois River. The paper will present the results of the assessment to date based on available data.

Dale M. Robertson

Dale M. Robertson and David A. Saad
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Dr. Dale M. Robertson is a Research Hydrologist with the U.S. Geological Survey, Wisconsin Water Science Center, in Middleton, WI. He received his M.S. and Ph.D. in Oceanography and Limnology at the University of Wisconsin-Madison, where his dissertation dealt with effects of climate change on the physical dynamics of lakes. He was a Post-Doctoral Research Fellow at the University of Western Australia, where he worked on modeling the physical dynamics of lakes and reservoirs. His current research deals with estimating loads and concentrations of nutrients and sediment in streams over large geographic areas, such as the Mississippi River and Great Lakes Basins, and developing nutrient criteria for streams and rivers, modeling mixing and eutrophication in lakes, and examining the effects of climate change on the physical dynamics, ice cover, and productivity of lakes.

David A. Saad

U.S. Geological Survey

Distribution and sources of nutrients in the Illinois River Basin in comparison to other areas of the Upper Mississippi River Basin

Excessive nutrient loading has been linked to many local eutrophication problems in lakes and rivers and downstream hypoxia in the Gulf of Mexico. To address these problems, it is important to understand where these nutrients originate and what are the sources of these nutrients. Because detailed nutrient and flow data are not available for most rivers, it is difficult to obtain this information. To fill the gaps left by sparse monitoring data, SPARROW (SPATIally Referenced Regression On Watershed attributes) models were developed for nitrogen (N) and phosphorus (P) for the Upper Midwest and the Mississippi/Atchafalaya River Basin (MARB). SPARROW model results were used to: 1) estimate P and N loading in rivers throughout the Midwest and the MARB; 2) determine the relative magnitude of P and N inputs from major sources (atmospheric, point sources, fertilizers, manure, fixation, and forested and urban lands); and 3) compare individual river basins based on total loads and relative yields. Of the nine major river basins in the MARB, the middle Mississippi River Basin (MMRB) had the highest yields of both N and P. In the MMRB, farm fertilizers was the major source of N, whereas, farm fertilizers, manure, and point sources were all important sources of P. Within the MMRB, the Illinois River Basin (IRB) was in the upper 20% of the basins with the highest N yields and in the upper 40% of the basins with the highest P yields. Agricultural activities were the major sources of N and P in the IRB, with farm fertilizers being the single largest source N and P. Although agricultural sources were most important, point sources accounted for about 30% of the P and 17% of the N in the entire IRB and were very important at small local scales.

Moderator: Andrew Phillips

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Drew Phillips has been a scientist in the Quaternary Geology Section, Illinois State Geological Survey, since 1997. Although his background is mainly in fluvial sedimentology, he has ongoing research in the glacial geology of southwestern Illinois and glacier dynamics of the penultimate glaciation, post-glacial geomorphic evolution of watersheds, and seismic hazards. He has special interests in the interactions of people with their environment, and using Geographic Information Systems for geologic mapping. Prior to his work in Illinois, Dr. Phillips received his M.S. and Ph.D. from the University of Illinois – Chicago, and did postdoctoral research at the University of Delaware on estuarine sedimentology in the Hudson River.

Courtney Flint and Lama BouFajreldin

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Dr. Courtney Flint is an Associate Professor of Rural and Natural Resource Sociology in the Department of Natural Resources and Environmental Studies at the University of Illinois at Urbana-Champaign. Her research explores how rural people, communities and regions respond to environmental change and disturbance as well as the relationship between local knowledge and science in managing natural resources. Lama BouFajreldin is PhD Candidate in the Department of Natural Resources and Environmental Sciences at UIUC. Her dissertation research examines risk perceptions and local knowledge among the people engaged with four watershed partnerships in Southern Illinois. She also has a background in environmental public health.

Navigating Diverse Perceptions of the Environment among Watershed Stakeholders

Watersheds are complex dynamic socio-ecological landscapes which are often misunderstood or misrepresented due to broad assumptions of homogeneity or uncertainty. These landscapes often span across geographical and administrative boundaries and include stakeholders from all walks of life. Interactions of stakeholders within watersheds generate diverse perceptions of, experiences with, and concerns about local environments. Variations in perceptions are also expected given the diversity of stakeholders' personal, socio-cultural, and institutional backgrounds. Understanding varying watershed perceptions, including how people interpret threats or capacities to respond to hazards, is important for developing effective watershed management schemes or programs. Socio-cultural assessments help to understand variations in vulnerability and resiliency of communities in watersheds. This paper presents findings from research projects conducted in Southern and Central Illinois watersheds. These studies looked into the nature of stakeholders' perspectives on and concerns about environmental issues in their watersheds. The paper ends with suggestions on ways to improve collaboration among watershed stakeholders to enhance watershed management and build resiliency in the face of potential watersheds risks and disasters.

Session A-4

Social Factors for Water Resource Management

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Dr. Ken Genskow is an assistant professor of environmental planning in the Department of Urban and Regional Planning at University of Wisconsin-Madison. Ken is a water resources specialist with UW-Extension and oversees a statewide extension program for Wisconsin addressing water, forestry, and participatory resource management. His research and extension activities address human dimensions of natural resources and environmental management. Ken has BS (General Engineering) and MS (Urban and Regional Planning) degrees from University of Illinois-Urbana Champaign, and a PhD in Environmental Planning from UW-Madison.

Social Indicators for Nonpoint Source Management

Social indicators provide information about the social context, capacity, awareness, attitudes, and behaviors of individuals, households, organizations, and communities. Applied to nonpoint source issues, they can help local project staff identify appropriate combinations of technical, financial, and educational assistance for those making land management decisions that influence water quality. They also provide consistent measures of change for assessing impacts across projects, states, and regions.

A project team consisting of university researchers, staff from state environmental agencies, and USEPA Region 5, has developed the Social Indicator Planning and Evaluation System (SIPES) to support social indicator use across the Great Lakes Region. SIPES includes a set of core indicators and related processes for collecting, analyzing, and using indicator data. The approach helps focus project planning and enables local projects to measure social change due to NPS management efforts. A multi-year pilot-testing phase with projects across the Great Lakes region produced insights on the indicators, effective methods for collection, and overall usability and utility of SIPES for local water quality projects and state programs. The system is now available for general use. This presentation will describe the social indicators system and discuss its potential for the Illinois River Basin.

Cassandra McKinney

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Cassandra McKinney is the Water Resources Manager for the County of McHenry Division of Water Resources. For the past four years, Cassandra has coordinated the development and implementation of a comprehensive Water Resources Action Plan and multiple groundwater research projects aimed at protecting and preserving a sustainable, safe supply of potable water. She is active with the Northern Illinois Regional Water Supply Planning Group, the McHenry County Council of Governments Water Policy Task Force, the Northwest Water Planning Area Technical Committee, and the ISAWWA Water Efficiency Committee. Prior to joining the County, Cassandra worked in land-use planning for the USDA-Natural Resources Conservation Service. Cassandra holds Bachelor of Science in Environmental Science from Western Washington University and is currently pursuing a Master's in Public Administration through the University of North Dakota and a Certificate in Water Conflict Management from Oregon State University.

Integrating Science into Water Supply Planning

Over the past two decades, McHenry County, Illinois has been one of the fastest growing counties in the State. From 2000 to 2030, McHenry County's population (current population 308,000) is expected to grow by 180,000. In addition, the County is solely dependent on groundwater, with no other options available. Studies suggest that areas in Northeastern Illinois and McHenry County may experience water supply shortages as early as 2030. In the year 2000, water use in the county amounted to an annual average of 34.6 million gallons per day (mgd). By 2030, average annual water use is estimated to almost double to 67.5 mgd. In an effort to plan for the future and guard against supply shortages, McHenry County has engaged in a comprehensive effort to study its only potable water supply - Groundwater.

This presentation will highlight the importance of cooperative planning and the significance of building a strong base of scientific knowledge to protect and preserve water resources. A brief overview of the County's Water Resources Action Plan (WRAP) will be provided as well as information on the four scientific projects that are currently underway, including: 3-D Hydrogeological Modeling (ISGS), Groundwater Flow Modeling (ISWS), Installation of and Real-timing of 41 Observation Wells, Stream Gauges, and Precipitation Gauges (USACE, USGS, and ISGS), and Water Quality Sampling (USGS).

Session B-4

Stormwater Management in Urban Landscapes

Moderator: Melinda Pruett-Jones

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Melinda Pruett-Jones is the executive director of Chicago Wilderness, an alliance of more than 250 diverse organizations that work together to restore local nature and improve the quality of life in the Chicago metropolitan region by protecting the lands and waters on which we all depend. CW's regional landscape spans SE Wisconsin, NE Illinois, NW Indiana and SW Michigan. The alliance leverages its collective capacities to develop bold regional plans, to protect, restore, manage, and study the natural areas of our region, and to raise awareness, educate, and inspire citizens to become stewards of our land and waters.

Melinda concentrates on organizational development of this large and growing landscape-scale conservation network, as well as strategic alignment of CW's vast working groups and conservation action to advance CW's four strategic initiatives: Leave No Child Inside, Green Infrastructure, Climate Action, and Restoration & Management. She also worked to establish the Metropolitan Greenspaces Alliance, uniting urban conservation coalitions in Portland, Houston, Cleveland, Los Angeles, and Milwaukee to serve as a national knowledge base on green infrastructure in metro regions. Melinda has a MS degree in Zoology and over 30 years of professional experience in conservation organizations.

Jim Nelson

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Jim oversees the update process for the Illinois Urban Manual and promotes urban soil and water conservation throughout Illinois. He works closely with IL EPA on Green Infrastructure and statewide stormwater issues. Jim previously worked as a restoration ecologist and holds a master's degree in biology.

The Illinois Urban Manual Update Process

The Illinois Urban Manual is a widely referenced technical manual for proper installation of erosion, sediment, and stormwater best management practices (BMPs) in Illinois. The manual originated with the, "Blue Book" and evolved through a series of other manuals all identified by the color of their front cover: Yellow Book, Green Book, etc.

After nearly a decade since its last revision, a group of committed individuals volunteered their time to update the manual based on new technologies and the elimination of practices that simply did not function to the high standards required on construction sites. This presentation will focus on how the group found money and leveraged other resources to update this important set of best management practices and then go into how it can be used by anyone with a soil loss problem on a construction site or even on a project in their back yard. Several of the more common standards will be covered to show some of the changes in the tried and true practices we see every day such as siltfence and erosion control blankets.

Christine Davis

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Chris is a Project Manager for the Nonpoint Source Unit in the Watershed Management Section of the Bureau of Water at Illinois EPA's Springfield Headquarters. Ms. Davis routinely works with not-for-profit organizations and local governments to successfully implement site-specific and watershed-wide nonpoint source pollution control practices, projects and programs.

Her job includes many "other duties as assigned", such as being lead staff to update the Illinois Nonpoint Source Management Program, documenting the nonpoint source needs for the State of Illinois in the federal Clean Water Needs Survey and serving as a co-chair for this conference

Prior to working with Illinois EPA, Chris was a Resource Conservationist for the Macon, Sangamon and Macoupin County Soil & Water Conservation Districts for more than eight years. During that time, she developed and delivered a variety of environmental education programs for students and adults and devoted a great deal of her time developing conservation farm plans and designing conservation practices for local farmers.

Ms. Davis has a Bachelor of Science degree in Agronomy from Western Illinois University and has invested thousands of volunteer hours to support environmental organizations in Sangamon County.

Illinois' Approach to Stormwater and Green Infrastructure

Stories of record rainfall and flooding are prevalent in today's news. Along with the flood waters come high levels of nutrients, sediment and other nonpoint source pollutants. A decline in the water quality of our rivers, streams and lakes is evident and does not ebb like the flood waters ebb.

Illinois EPA receives countless requests for assistance to abate excess stormwater runoff. Our traditional programs address large volumes of stormwater through permits and pipes, but expanding urbanization is deteriorating the abilities of these efforts to provide adequate protection to our water resources.

In 2010, the Green Infrastructure for Clean Water Act prompted Illinois EPA to investigate the potential to increase the use of green infrastructure and other tools to manage stormwater in Illinois. In partnership with the University of Illinois - Chicago and other stakeholders a report was completed that recommends enhancing existing programs, and developing new tools to keep the rain where it falls and increases participation of local stakeholders in this effort.

The Illinois Green Infrastructure Grant (IGIG) Program was developed in 2010 that provides \$5,000,000 in grants ranging from \$15,000 to \$3,000,000 to implement green infrastructure projects to reduce runoff within areas serviced by either a Combined Sewer Overflow or a Municipal Separate Storm Sewer System.

More than 150 applications requesting nearly \$50 million in funding were received. This remarkable response demonstrates the urgent local need for assistance to implement green infrastructure storm water controls. The large pool of applicants also illustrates the diversity of implementers interested in improving stormwater management as an important component to protecting Illinois' water resources.

This presentation will describe updates to existing programs and progress on new tools and programs, including IGIG.

Patricia S. Werner

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Patricia S. Werner is the Planning Supervisor for the Lake County Stormwater Management Commission (LCSMC) where she has been a Watershed Planner since June of 1996. She is project manager for the development of watershed, flood mitigation, and green infrastructure plans that address flood damage reduction, water quality improvement and natural resource protection and enhancement; and has also planned and managed construction of stream restoration/stabilization projects and green infrastructure best management practices.

Prior to working at LCSMC, Patty held the position of Director of the Sierra Club Wetlands Project in Indiana where she was actively involved in wetland regulatory and drainage policy, wetland project review and teacher education. Patty served on the Board of Directors for the Liberty Prairie Conservancy from 1998-2009 holding several offices including president; and is presently serving her third term as the President of the Upper Des Plaines River Ecosystem Partnership.

Patty is a member of the American Institute of Certified Planners and is a Certified Floodplain Manager. She has Master of Science degrees in both Environmental Science and Public Administration, and a Bachelor of Science degree in Business Economics from Indiana University in Bloomington Indiana.

Sustainable Stormwater Green Infrastructure Practices in the Illinois River Headwaters

Green infrastructure best management practices (BMPs) to reduce stormwater runoff and pollution were designed and constructed for sustainable site development at the Lake County Central Permit Facility in Libertyville, IL to provide cleaner water and to recharge the groundwater aquifer. The practices used include a green roof, rain gardens, native plant swales, a bio-infiltration swale and wetland detention basins. Each of the practices individually absorbs rainfall and filters pollutants from stormwater runoff, and together operates as a collective system reducing the volume of runoff and non-point source pollution that reaches Bull Creek and the Des Plaines River, tributary of the Illinois River. The intent for installing the stormwater BMPs is to demonstrate and promote the use of green infrastructure BMPs like these in development and redevelopment throughout Lake County and the Chicago region.

The Libertyville facility stormwater best management practices (BMPs) were designed to reduce nonpoint source pollutant loads. Specific project goals include: filter nonpoint source pollutants from runoff from the building, roads and parking lot; reduce the total volume of runoff from the facility site to as close to pre-development hydrology as possible; demonstrate the effectiveness of the stormwater green infrastructure BMPs for businesses, local governments and the development community; and provide a venue for passive and active BMP education programs targeting the development community, local governments, businesses, local watershed groups and the general public. In addition to water quality and education, the Libertyville facility site BMPs also provide watershed and natural resource benefits. The site BMPs help prevent downstream flood damage and protect and enhance natural resources by providing channel and wetland protection downstream of the BMP facility, and the deep-rooted native plants provide habitat for native aquatic and terrestrial fauna.

Session C-4

Monitoring II: Sediment

Moderator: Nani G. Bhowmik

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Dr. Nani Bhowmik is a Registered Professional Engineer in Illinois with more than 40 years of experience in river related issues. He is an internationally recognized river engineer in the areas of floods, geomorphology, erosion, sediment transport, sedimentation, river-bank erosion, ecosystem based restoration, river hydraulics, watershed restoration, lake rehabilitation and other related topics. Dr. Bhowmik is also recognized as an authority on the Upper Mississippi River Basin including the Illinois River. His contributions on floods and aftermath of floods, especially the 1993 Great Flood on the Upper Mississippi and Missouri Rivers, have received local, national, and international recognitions. Dr. Bhowmik was also a lead contributor in the preparation of the concept paper for the Ecosystem Restoration of the Illinois River Basin.

Dr. Bhowmik received his B.Sc. Engineering with distinctions, and M.S. and Ph.D. degrees from the Colorado State University, Fort Collins, CO. Since receiving his Ph.D. in 1968, Dr. Bhowmik had an extremely successful career as a Research Engineer in river issues until 2001 when he retired as a Principal Scientist from the Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign and now holds the title of "Principal Scientist Emeritus."

Laura Keefer

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Laura Keefer is a Fluvial Geomorphologist at the Illinois State Water Survey and been there for 25 years. Her current research interests focus on the processes of erosion and sedimentation. She also directs the Illinois Benchmark Sediment Monitoring Program (BSMP) activities and data analyses. Laura has conducted several hydrologic, sediment, and nutrient investigations around the state which includes the Upper Sangamon River (Lake Decatur) and Cache River Basin watersheds during most of her career at the Water Survey.

Illinois Benchmark Sediment Monitoring Program: 30 Years

The Illinois State Water Survey (ISWS) is collecting long-term suspended sediment data at 15 sites throughout the State of Illinois. This unique data collection program was established in 1980 to develop a comprehensive, long-term database to provide a means for investigating and quantifying long-term suspended concentration trends in Illinois watersheds. With 30 years of weekly suspended sediment data, the database can be used to estimate sediment delivery to lakes and reservoirs, identify watersheds with high erosion rates for targeting BMPs, evaluate effectiveness of erosion control programs, estimate sediment loads in nearby unmeasured streams, and determine long-term trends in sediment transport. BSMP sites are co-located with continuous recording USGS or ISWS streamgaging stations, which allows for the computation of sediment loads. Suspended sediment concentration samples are collected on a weekly basis by citizen observers and calibrated with periodic depth-width integrated cross-section sampling performed by ISWS personnel. The ISWS also periodically collects samples for particle-size distribution. Weekly samples are collected from equipment mounted at a fixed location on the bridge over the main channel.

Using the 30 years of suspended sediment and discharge data, suspended-sediment discharge relationships are developed to estimate annual loads and annual mean sediment-concentrations at each station. Trend analyses are then conducted to determine any temporal trends in annual mean discharge, annual sediment load, and annual mean sediment concentration for each station. Sediment yield estimates provide information that can be used to help identify watersheds that might benefit the most from the implementation of watershed management practices designed to reduce sediment loads. The data collected by this ISWS program continues to provide valuable baseline data on sediment transport rates throughout Illinois. It is anticipated that this data will be extremely helpful in monitoring and documenting the success of sediment-reduction programs being proposed and implemented throughout the Illinois River Basin.

Timothy D. Straub

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Tim has earned Civil and Environmental Engineering degrees from the University of Illinois (BS and MS) and Colorado State University (PhD). He has worked for the USGS for over 15 years on various projects including hydraulic and hydrologic modeling, bridge scour prediction, stream restoration and dam removal analysis, sediment transport modeling, and river mechanics. Tim is also the current sediment specialist for the USGS in Illinois and oversees the sediment program.

Draft National Guidelines for Assessing Sediment-Related Effects of Dam Removal: Illinois' Role

A growing number of dams are being considered for removal due to physical deterioration, risk of failure, and (or) loss of economic viability. In addition to the possible environmental impacts, the costs of removing dams and managing or removing the impounded sediment can be substantial. Unfortunately, technical guidance and information on releasing the impounded sediment is limited.

The interagency Advisory Committee on Water Information: Subcommittee on Sedimentation (SOS) is sponsoring the development of guidelines for assessing sediment-related effects from dam removals. Technical experts from twenty-six entities across the United States have been involved in developing the guidelines with the U.S. Bureau of Reclamation as the lead agency. The draft guidelines provide advice on the level of sediment data collection, analysis, and modeling needed to understand the effects of a dam removal.

The guidelines relate the characteristics of the reservoir sediment to sediment characteristics of the river, and are being validated on a wide range of reservoir sediment volumes and geographic locations to ensure broad applicability. In Illinois we have a unique opportunity to further test these guidelines given the forward thinking approach to sediment management in completed and planned dam removal projects.

Bruce L. Rhoads

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Bruce L. Rhoads received his PhD from Arizona State University and is a Professor in the Department of Geography at the University of Illinois. His research interests include fluvial geomorphology, watershed management, and stream naturalization. For many years, he focused on fluvial processes in small headwater streams in the midwestern United States and the relation of these processes to human modification of landscapes. In recent years, his attention has shifted to the fluvial dynamics of large rivers. In 2005 he was awarded a John Simon Guggenheim Fellowship in recognition of his work on the geomorphology of rivers. He has published over 75 journal articles and book chapters.

How Do Human Impacts and Geomorphological Responses Vary with Spatial Scale in the Streams and Rivers of the Illinois Basin?

Humans have altered the geomorphological and hydrological dynamics of rivers and streams throughout the Illinois River Basin. Human modification of system dynamics has had extensive effects on channel stability, hydrological regime, floodplain-channel connectivity, sedimentation within channels and on floodplains, bank erosion, and aquatic habitat. While many of these effects are well-known, it is not widely recognized that human impacts and geomorphological responses vary with spatial scale. Effective management of the Illinois River Basin depends on sound understanding of these scale relations.

Many headwater channels have been converted into straight trapezoidal ditches for the purposes of agricultural land drainage, ease of access to farmland, and urban stormwater-runoff control. These channels now have flashy hydrological regimes with enhanced rates and amounts of runoff both in agricultural and urban areas. Urban channels often are eroding, whereas agricultural channels typically either are stable or act as sediment sinks. At the scale of major tributaries, many channels are meandering, but rates of lateral migration are enhanced by rapid delivery of large amounts of runoff from channelized headwater streams. Thus, rates of bank erosion are high and some channels have become incised. Flow may be regulated locally by run-of-river dams. Removal of these structures, many of which are in a state of disrepair, has become an important environmental and public-safety concern. At the scale of the Illinois River main stem, the primary problem is net sedimentation from large amounts of sediment delivered from tributary watersheds. Regulation of flow by navigation locks and dams impedes sediment movement and has altered the hydrological regime, preventing flood pulses that might otherwise flush sediment from the main channel.

— Interactive Digital Technologies Open House

Rich data resources and powerful mapping and measurement tools to help you accomplish your resource management goals are increasingly available on the Internet. At this open house, attendees will be able to get one-on-one expert advice to help identify, acquire, and understand available data, turn data into useful illustrations or maps, and combine various data to answer questions. Both novice and advanced users are welcome.

Moderators: Andrew Phillips and Gary P. Johnson

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Drew Phillips has been a scientist in the Quaternary Geology Section, Illinois State Geological Survey, since 1997. Although his background is mainly in fluvial sedimentology, he has ongoing research in the glacial geology of southwestern Illinois and glacier dynamics of the penultimate glaciation, post-glacial geomorphic evolution of watersheds, and seismic hazards. He has special interests in the interactions of people with their environment, and using Geographic Information Systems for geologic mapping. Prior to his work in Illinois, Dr. Phillips received his M.S. and Ph.D. from the University of Illinois – Chicago, and did postdoctoral research at the University of Delaware on estuarine sedimentology in the Hudson River.

Gary P. Johnson

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Gary Johnson serves as the Chief of the Hydrologic Data Section of the USGS, Illinois Water Science Center in Urbana, IL. As Data Chief, his current duties include oversight and administration of the entire streamflow gaging station network throughout the State of Illinois, with an annual budget of over \$3.1 million dollars. He has been with USGS since 1989. Before becoming Data Chief in 2004, Gary was involved in a variety of surface-water quantity, bathymetric, and surface-water quality projects. During his 21-year career, Gary has authored or co-authored 25 USGS scientific reports. Gary holds a BS degree in General Engineering from the University of Illinois, and is currently in Grad School at U of I seeking a Masters in Public Administration.

How to Access USGS Water Resources Data

The USGS streamgaging network provides important hydrologic information needed to manage our Nation's invaluable surface-water resources. Requests for timely streamflow information led to the development of a nationally seamless system which currently serves real-time data for more than 9,900 sites and services up to 19 million requests per month. Real-time streamflow data are processed and managed in the USGS National Water Information System (NWIS). NWISWeb, the web interface to NWIS, integrates many NWIS data, including real-time streamflow data, and provides the public with access to more than 100 years of water data collected by the USGS.

Traditional NWISWeb users that have benefited from the timely and robust web-interface access to the USGS water data are engineers, scientists, water managers, and emergency response professionals. Internet access to USGS water data has also created a new class of external users including fishermen, floaters, landowners, and other individuals who otherwise would not be able to easily access these data in a timely manner.

During the IDT, Gary Johnson will demonstrate how to retrieve streamgage data, as well as groundwater, precipitation, and other data using NWISWeb through the USGS IL Water Science Center web page located at <http://il.water.usgs.gov/>.

Interactive Digital Technologies Open House —

Dee Lund

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Dee Lund is a GIS specialist for the Illinois State Geological Survey (ISGS) at the Prairie Research Institute at the University of Illinois at Urbana-Champaign. Her primary project is to provide online access to Illinois historical aerial photographs from Illinois' first statewide aerial acquisition (1936-1941). She also provides GIS support to many other projects within the ISGS. Prior to joining the ISGS in 2001 Ms. Lund was an archaeologist and map illustrator for the Wisconsin State Historical Society - Museum Archaeology Program for seven years. She received a B.A. in geology and anthropology from the University of Minnesota - Duluth.

Historical Aerial Photographs of Illinois

Historical aerial photographs are intensively used for diverse purposes by government agencies, surveyors, consulting scientists, engineers, historians and other individuals. These purposes include determination of past land uses, restoration of natural areas, assessing historical changes in stream dynamics, and a variety of other applications.

The earliest statewide collection of historical aerial imagery (1936-1941) is being distributed online through the Illinois Natural Resources Geospatial Data Clearinghouse. This clearinghouse is an established node of the National Spatial Data Infrastructure Clearinghouse Network and is hosted by the Illinois State Geological Survey (ISGS).

After more than ten years and multiple grants, photos for the entire state of Illinois are now available on the clearinghouse. The images for each county are available in 3 different image file formats. The two compressed file formats are available on-line - MrSID (original compressed format) and JPEG (newly available compressed format). The high resolution TIFF file format images are not available on-line but can be readily acquired. The MrSID images require a browser plug-in to be installed for online viewing of the photos, but provide a unique viewing experience. Access to the photos through an interactive map has also been updated.

The interactive display will demonstrate some of the many uses of these historic aerial photographs. In addition, you can learn how to view and download these captivating 1930's and 1940's photographs for your own research or private interest.

— Interactive Digital Technologies Open House

Shelley Silch

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Shelley Silch is the U.S. Geological Survey (USGS) Geospatial Liaison for Illinois. She has been with the USGS for over 28 years with the last five in Illinois. As a liaison she represents, coordinates and implements National Geospatial Program Office programs and initiatives in the context of State, local, other federal agency and regional needs and strategies. Her primary role is to engage partners by providing leadership and guidance to ensure the unified implementation of the entire portfolio of national geospatial programs and to implement key components of the National Spatial Data Infrastructure.

The National Map

The National Map Viewer, Services, and Data Download are managed by the U.S. Geological Survey's (USGS) National Geospatial Program. The National Map has transitioned data assets and viewer applications to a new visualization and product and service delivery environment, which includes an improved viewing platform, base map data and overlay services, and an integrated data download service.

This new viewing solution expands upon the National Geospatial Intelligence Agency (NGA) Palanterra X3 viewer, providing a solid technology foundation for navigation and basic Web mapping functionality. Building upon the NGA viewer allows The National Map to focus on improving data services, functions, and data download capabilities.

The National Map viewer is the new one stop destination for downloading all the latest The National Map data and products for FREE.

Interactive Digital Technologies Open House —

Carolyn S. White

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Dr. Carolyn S White is currently Project Manager in the CyberInfrastructure and Geospatial Information Laboratory (CIGI) at the University of Illinois in Champaign-Urbana (<http://www.cigi.illinois.edu/doku.php>). For a decade she has been managing the development of web-based GIS decision support. She is also engaged in some of the hands-on GIS and IT aspects in the projects, as well as providing one-on-one help to users requesting assistance. Previous affiliations for this work include the College of ACES and the Department of Computer Science.

Dr. White came to UIUC in 1980 after receiving her PhD at the University of Arizona. For almost two decades she served as Manager/Acting Director/Assistant Director of a lab providing statistical support for instructors and their students as well as researchers across the UIUC campus. In the early 1990s she became smitten with the opportunities geographic information systems (GIS) provide for visually displaying census data in a map and its relationship with other data. The next step was moving to integrate this with web-based GIS.

Involvement in the development of the Resource Management Mapping System (RMMS) has been life changing since it prompted me to learn about issues in watershed management and water quality.

Resource Management Mapping Service (RMMS) a Tool for Watershed Stakeholders

The Resource Management Mapping Service (RMMS) is a resource for Illinois public watershed stakeholders as well as government personnel. RMMS combines data from the Illinois State Geological Survey data clearinghouse (<http://www.isgs.uiuc.edu/nsdihome>) with data published by the Census Bureau, FEMA, ESRI, USDA-NRCS and data created at IDNR and IEPA in one location and in one coordinate system. The user can choose from over 50 data layers to view simultaneously in their IE web browser.

Four data layers are currently being continually appended at RMMS by IEPA personnel: 319 BMP projects, Lake BMP projects, Illinois Green Infrastructure Grant Program for Stormwater Management (IGIG) BMP projects, and watershed plans. The location of the project is specified on the map and becomes immediately available for the RMMS user to see and query along with the attributes of the project. The user can create reports at different levels of aggregation (watershed, county, legislative district, etc.)

RMMS provides the user many tools to assist in decision support and communication. A few of these tools include creating a buffer, a drill-down identify displaying the attributes of each layer at a given point, (those results can be copied and pasted into a document), finding all records with a specific characteristic, saving the map for inclusion in a publication, sending the map via email along with comments (this also includes a link for the recipient to return to RMMS and see what layers you had turned on and at the location you were), annotating the map with text and symbols.

During the sessions at the Interactive Digital Technologies (IDT) Open House, we will provide informal demonstrations to help maximize the experience with RMMS.

<http://www.rmms.illinois.edu/website/rmms> is the current URL.
<http://rmms-space4.ad.uiuc.edu/RMMS-ArcGIS/Home.aspx> is the URL under development using new technologies and which contains additional data layers.

IEPA provides funding support for RMMS.

— Interactive Digital Technologies Open House

Matt Williams

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Matt Williams is a GIS Specialist and Website Administrator with the Illinois State Water Survey at the University of Illinois in Urbana-Champaign working with the Coordinated Hazard Assessment and Mapping Program on projects related to FEMA's National Flood Insurance Program. He earned a Master of Arts degree in Geography from Western Michigan University focusing on GIS and Urban Planning. Matt has 6 years of professional experience with GIS software, geographic concepts and technology, web mapping applications, floodplain delineation, and cartography.

Web Mapping Application Showing New Stream Studies in Illinois

Part of the outreach efforts of the Coordinated Hazards Assessment and Mapping Program is the web mapping application, "Destined for DFIRMs." The application was built on the Adobe Flex and ESRI API for Flex 2.0 platform. This site is intended for displaying hydrologic and hydraulic (H&H) studies to eventually be incorporated into Digital Flood Insurance Rate Maps. Criteria for our displayed studies:

- Must have a finalized contract for work
- Publicly funded
- Submitted voluntarily
- Within the HUC8 watershed boundaries

This site shows those areas where the Illinois State Water Survey's CHAMP group is either performing engineering studies, collecting information, or incorporating new engineering data submitted by others as Physical Map Revisions (PMRs) to the Digital Flood Insurance Rate Maps, as well as, other publicly funded studies. The Web application can be a tool to guide those seeking Letters of Map Revision (LOMRs) through MT-2 form submission. If there are LOMR studies or other flood hazard studies ongoing in or near the identified streams on our application, please contact our staff to verify precise locations to avoid redundancy.

Interactive Digital Technologies Open House —

Timothy Prescott

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Tim Prescott joined the Natural Resources Conservation Service (NRCS) staff in Champaign as a Resource Inventory Specialist on September 13, 2010. Tim and his family moved to Champaign from Morgantown WV, where he was a Geographic Information System (GIS) Specialist with NRCS for soil survey quality assurance in seven states in the Mid-Atlantic Region. He has worked with NRCS for twenty-two years in Wisconsin, Nebraska and West Virginia. He has a B.S. in Landscape Architecture from the University of Wisconsin, and has been applying geospatial technologies to resource management problems for more than twenty-five years.

The Simple Yet Powerful Way to Access and Use Soil Data

The Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

This presentation will demonstrate the use of WSS for practical applications in resource management, regional planning, and engineering and construction design. Demonstrations will focus on the utility of WSS for immediate responses to ad hoc requests for soil survey data. Interpretations and reports will be shown that translate complex soil survey information into easily understandable and presentable documentation for all users of soils data.

Conference Co-Chairs

Christine Davis

Illinois Environmental Protection Agency
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Chris is a Project Manager for the Nonpoint Source Unit in the Watershed Management Section of the Bureau of Water at Illinois EPA's Springfield Headquarters. Ms. Davis routinely works with not-for-profit organizations and local governments to successfully implement site-specific and watershed-wide nonpoint source pollution control practices, projects and programs.

Her job includes many "other duties as assigned", such as being lead staff to update the Illinois Nonpoint Source Management Program, documenting the nonpoint source needs for the State of Illinois in the federal Clean Water Needs Survey and serving as a co-chair for this conference

Prior to working with Illinois EPA, Chris was a Resource Conservationist for the Macon, Sangamon and Macoupin County Soil & Water Conservation Districts for more than eight years. During that time, she developed and delivered a variety of environmental education programs for students and adults and devoted a great deal of her time developing conservation farm plans and designing conservation practices for local farmers.

Ms. Davis has a Bachelor of Science degree in Agronomy from Western Illinois University and has invested thousands of volunteer hours to support environmental organizations in Sangamon County.

Rick Mollahan

Illinois Department of Natural Resources
217-785-8264
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Rick has been with the Illinois Department of Natural Resources since 2001. He is currently the Manager of the Corps of Engineers Ecosystem Programs in the Office of Resource Conservation. Prior to joining IDNR, Rick was with the Illinois EPA. From 1978 to 1986, he was a Project Manager in Construction Grant Administration, and from 1986 to 2000, Rick was the Manager of the Water Quality Management Program and Nonpoint Source Program.

Rick has been a speaker and Moderator at numerous National Conferences on Nonpoint Pollution, the Illinois River Basin, and the CREP Program.

Rick holds a Bachelors Degree in Recreation and Park Administration from Western Illinois University, and a Masters Degree in Environmental Studies from the University of Illinois at Springfield.

Rick and his wife, Sandy have been married for 37 years and have two children age 21 and 26. In his spare time, Rick is lead singer in a rock and roll band known as "Live Radio". He currently spends his spare time with friends and family, remodeling his home, and planning his retirement to Italy.

Conference Co-Chairs

William P. White

University of Illinois at Urbana-Champaign,
Prairie Research Institute
Illinois State Water Survey
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bwhite1@illinois.edu

William (Bill) White is a Geomorphologist and Principle Investigator working in the Center for Watershed Science at the Illinois State Water Survey (ISWS); a Division of the University of Illinois' Prairie Research Institute. Bill served in this position since 2003. Bill previously served for over 23 years at the Illinois Department of Natural Resources' Springfield headquarters serving as Science Advisor to IDNR's Director of Planning and Environmental Sciences. Bill manages operations, planning, research, and grants and contract funding and directs the State Water Survey's Stream and Watershed Assessment & Restoration Program. Bill is author of dozens of articles, presentations, and contract reports.

Select memberships and public service include:

- Elected full lifetime member of Sigma Xi (The National Scientific Research Society),
- Appointed by the Mayor of the City of Peoria as a Commissioner with the Peoria Sustainability Commission serving Peoria and the surrounding Tri-County regional area,
- Vice President of Heartland Water Resources Council of Central Illinois,
- Appointed to the State of Illinois' Senate Advisory Committee for Geological Bedrock and Surficial Deposits Glacial Mapping Priorities,
- Co-Chair of the Executive Committee for the 2009 and 2011 Governor's Conference on the Management of the Illinois River System,
- Appointed Adjunct Faculty with the Illinois State Natural History Survey,
- Member of the "Faculty of the Environment" with University of Illinois' Environmental Council.
- Executive Committee member of the Illinois Water Resources Center,
- Executive Committee member of the U. S. Army Corps of Engineers Illinois River Basin Restoration Section 519 funding Committee and serves as State of Illinois liaison to the U. S. Army Corps of Engineers for this effort,
- Executive Committee member for U. S. Army Corps of Engineers Navigation & Ecosystem Sustainability Program (NESP) Project Working Group for the Illinois River Basin and serves as a State of Illinois liaison to the U. S. Army Corps of Engineers Illinois River Team for this effort,
- Science Advisor to IDNR's Coastal Zone Management Program.

Platinum Level

Caterpillar Inc.
Illinois American Water Company
Illinois Department of Natural Resources
Illinois Environmental Protection Agency
Illinois Water Resources Center
Lisa Madigan, Attorney General, State of Illinois
Prairie Research Institute, University of Illinois at Urbana-Champaign:

- Illinois State Natural History Survey
- Illinois State Archaeological Survey
- Illinois State Geological Survey
- Illinois State Water Survey
- Illinois Sustainable Technology Center

USDA - Natural Resources Conservation Service
US Environmental Protection Agency

Silver Level

Illinois Department of Commerce and Economic Opportunity
Illinois Farm Bureau
Tri-County Regional Planning Commission
USDA–Farm Service Agency
US Geological Survey

Bronze Level

Illinois Department of Agriculture
The Nature Conservancy
University of Illinois Office of Extension and Outreach

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US Army Corps Engineers, Rock Island District

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Rick Mollahan (Co-Chair)

Illinois Department of Natural Resources

William P. White (Co-Chair)

Illinois State Water Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

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Scott Wallace

USDA Natural Resources Conservation Service

Terry Weldin-Frisch

Illinois Department of Commerce & Economic Opportunity

Janel Veile

IDOT Bureau of Design & Environment

Aaron Yetter

Illinois Natural History Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign

USGS Summer Intern Program

None.

Student Support					
Category	Section 104 Base Grant	Section 104 NCGP Award	NIWR-USGS Internship	Supplemental Awards	Total
Undergraduate	0	0	0	0	0
Masters	2	1	0	0	3
Ph.D.	0	0	0	0	0
Post-Doc.	0	0	0	0	0
Total	2	1	0	0	3

Notable Awards and Achievements

IISG co-sponsored the Governor's Conference on Management of the Illinois River. We have also forged a partnership with smallwatersupply.org. In the next year we hope to have impacts to report from that partnership.