



## **From Dust Bowl to Mud Bowl: Sedimentation, Conservation Measures and the Future of Reservoirs**

September 14-16, 2009  
Westin Crown Center  
Kansas City, MO

The goal of this conference is protection and conservation of reservoirs, a critical water resource in much of the U.S., by advancing interdisciplinary science, research, collaboration and problem solving regarding conservation practices and sedimentation of reservoirs. It will provide a unique opportunity to tie ongoing and needed research, extension, and education in conservation practices directly to the health and sustainability of federal reservoirs.

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## CSREES Disclaimer

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**From Dust Bowl to Mud Bowl:  
Sedimentation, Conservation Measures  
and the Future of Reservoirs**

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Kansas City, MO

**DAY ONE - Monday, September 14**

- |                       |   |                       |
|-----------------------|---|-----------------------|
| <b>4:00 – 6:00 pm</b> | <b>Poster paper set up and registration</b>   | Washington Park Lobby |
| <b>6:00 – 8:00 pm</b> | <b>Evening Social and Poster Session</b><br>Registration, Poster Papers, Social Event, Refreshments | Washington Park       |

**DAY TWO - Tuesday, September 15**

- |                        |   |                       |
|------------------------|---|-----------------------|
| <b>7:30 – 8:30 am</b>  | <b>Register and Collect Materials</b><br>Poster Papers Available all day  | Washington Park Lobby |
| <b>8:30 – 8:50 am</b>  | <b>Welcome and Recognitions, Why Are We Here?</b><br>Bill Hargrove, University of Texas at El Paso and<br>Mary Ann Rozum, USDA-CSREES | Washington Park       |
| <b>8:50 – 11:30 am</b> | <b>Plenary Session: The Picture for Sedimentation and Eutrophication in Reservoirs</b>  |                       |

**Session I-A 8:50-9:50** (Page 10)

Overview: Status of Reservoirs; Baseline Conditions and Trends; Impacts on Future Water Supplies. Moderator: Bill Hargrove, University of Texas at El Paso

- |      |   |
|------|---|
| 8:50 | Our Nation's Federal Reservoirs: Current Status and Future<br><i>John I. Remus, II, P.E., Chief, Hydrologic Engineering Branch, Omaha District<br/>US Army Corps of Engineers</i> |
| 9:10 | An Overview of Reservoir and Watershed Processes<br><i>Stanley Trimble, University of California-Los Angeles</i>  |
| 9:30 | The changing role of reservoirs and reservoir sedimentation in the<br>surface waters of the U.S.<br><i>William Renwick, Miami University</i>                                      |

9:50- 10:10                      *Break*

**Session I-B 10:10 – 11:30** (Page 12)

Washington Park

Overview: Sources of Sediment and Nutrients. Moderator: Jean Steiner, USDA-ARS

- |       |   |
|-------|---|
| 10:10 | Major Sources of Sediment: Sheet, Rill, and Ephemeral Gully Erosion in<br>Agricultural Landscapes<br><i>Chi-Hua Huang, USDA-ARS</i> |
| 10:30 | Major Sources of Sediment: Streambanks and Channels<br><i>Andrew Simon, USDA-ARS</i>  |
| 10:50 | The CEAP National Assessment<br><i>Jeff Arnold, USDA-ARS</i>  |
| 11:10 | Nutrient Loading in Streams and Eutrophication of Reservoirs<br><i>Andrew Sharpley, University of Arkansas</i>                      |

**11:30 am – 1:30 pm              Poster Session and Lunch** (on your own)

**1:30 – 3:30 pm Concurrent Sessions**

*Concurrent Session II-A. (Page 16)*

Washington Park 1

Costs and Consequences of Sedimentation  
Moderator: Earl Lewis, Kansas Water Office

- 1:30 Management of Federal Reservoirs for Flood Control and Effects of Sedimentation  
*Kenneth A. Stark, US Army Corps of Engineers, Kansas City District*
- 1:50 Planning for and Measuring Reservoir Sedimentation in Texas  
*Barney Austin, INTERA*
- 2:10 Aging Sediment Control Infrastructure.  
*Jerry Bernard, USDA-NRCS*
- 2:30 Small Dams Safety and/or Decommissioning  
*Greg Hanson, USDA-ARS*
- 2:50 Economics of Streambank Stabilization.  
*Jeff Williams, Kansas State University*
- 3:10 Major Cost and Efficacy of Dredging  
*Sarah Howard, Black & Veatch*

*Concurrent Session II-B. (Page 22)*

Washington Park 2

Consequences of Nutrient Loading and Sedimentation on Eutrophication Moderator: Bill Harris, Texas Water Resources Institute

- 1:30 Erosion Rates During the 1950s Drought Inferred from Sedimentation in PL 566 Reservoirs, McCulloch County Texas  
*John Dunbar, Baylor University*
- 1:50 Water Quality Trends in a Midwestern Watershed and Reservoir  
*William Renwick, Miami University*
- 2:10 Factors Influencing Eutrophication in Reservoirs  
*Scott Knight, USDA-ARS*
- 2:30 Impacts of Nutrient Loading and Sedimentation on Aquatic Life.  
*Andrew Dzialowski, Oklahoma State University*
- 2:50 Taste and Odor Problems in Drinking Water Supply Reservoirs  
*Ray West, City of Tulsa*
- 3:10 Quantifying Past Sedimentation Rates from Characterization of Sediment Profiles  
*Daniel Wren, USDA-ARS*

**3:30 – 4:00 pm Break**

**Planning Committee Members**

- W.L. Hargrove, University of Texas at El Paso
- Bill Harris, Texas Water Resources Institute
- Earl Lewis, Kansas Water Office
- Michael Smolen, Oklahoma State University
- Jean Steiner, USDA-ARS, El Reno, OK
- Ralph Davis, University of Arkansas
- Seth Dabney, USDA-ARS, Oxford, MS
- Brian Haggard, University of Arkansas
- Dewayne Johnson, Soil and Water Conservation Society
- Don Sneath, Kansas State University

**Planned and Implemented by**

- Soil and Water Conservation Society
- K-State Research and Extension/KSU
- Texas Water Resources Institute
- Arkansas Water Resources Institute
- USDA-Agricultural Research Service
- Oklahoma Cooperative Extension

**4:00 – 6:00 pm Concurrent Sessions**

*Concurrent Session III-A. (p28)*

Washington Park 1

Regional Challenges in Controlling Sedimentation and Protecting Reservoirs

*Moderator: Seth Dabney, USDA-ARS*

4:00 Urban/Rural Connections: The New York City Watershed.  
*Ray Bryant, USDA-ARS*

4:20 Characterization and source ascription of deposited sediments in streams that drain agricultural watersheds of the Canadian Maritimes  
*Glenn Benoy, Agriculture Canada*

4:40 Sediment Loading and Control in Crop and Livestock Agriculture in the Midwest  
*Matt Helmers, Iowa State University*

5:00 Sediment Loading and Controlling in the Grasslands of the Great Plains  
*Jurgen Garbrecht, USDA-ARS*

5:20 The Effectiveness of Small Dams/Reservoirs on Stream Water Quality and Quantity in the Canadian Prairies  
*Kevin Tiessen, University of Manitoba*

5:40 Sediment and the Missouri River Main Stem Reservoirs  
*Howard Paul, Missouri Sediment Action Coalition*

*Concurrent Session III-B. (p34)*

Washington Park 2

Best Management Practices and Targeting in Mixed Use Watersheds

*Moderator: Mike Smolen, Oklahoma State University*

4:00 Vegetative Buffers and Targeting in Watersheds  
*Michael Dosskey, USDA-Forest Service*

4:20 Using SWAT to Target and Assess BMP Implementation in Watersheds  
*Kyle Douglas-Mankin, Oklahoma State University*

4:40 Computing Time-Series Suspended Sediment Concentrations and Loads from In-Stream Turbidity-Sensor and Stream Flow Data.  
*Patrick Rasmussen, USGS*

5:00 Restoring Urban Watersheds Using Wetlands and Other BMPs  
*Dennis Haag, Burns & McDonnell*

5:20 Sediment Control Technologies for Urban and Suburban Landscapes  
*Beth Chesson, Civil & Environmental Consultants, Inc.*

5:40 Physical and social barriers to watershed management - lessons from the mid-Atlantic and Northeast U.S.  
*Tony Buda, USDA-ARS*

*Concurrent Session III-C. (p40)*

Brookside

Impacts of Structures, Reservoir Management, and Disturbance

*Moderator: Gaye Benfer, USDA-NRCS*

4:00 Smaller Sediment Control Structures as a Strategy for Protecting Large Reservoirs  
*Keith Admire, USDA-NRCS*

4:20 Sedimentation Rates at Proposed Lake Ralph Hall, North Sulphur River, Texas  
*Robert Mussetter, Tetra Tech, Inc.*

4:40 Reservoir Sedimentation Issues  
*Tim Randle, Bureau of Reclamation*

5:00 Sustaining Military Training Lands for Enhanced Military Readiness  
*Phil Woodford, Fort Riley, KS*

5:20 Measuring BMP Effect on Fort Hood Training Area Erosion using Water Quality Field Data and the APEX Computer Model  
*June Wolfe, Blackland Research Center*

5:40 Sources and Transport of Suspended-Sediment in Urbanizing Watersheds, Johnson County, Kansas, 2006-07  
*Andy Ziegler, USGS*

**End of poster session. Poster presenters remove posters at the end of the day.**

## DAY THREE - Wednesday, September 16

### 8:20-10:00 am Concurrent Sessions

*Concurrent Session IV-A. (p46)*  
Washington Park 1

Riparian Areas, Stream Banks, and Stream Beds: Processes and Best Management Practices  
Moderator: Karen Flourney, US EPA

- 8:20 Groundwater Seepage as a Contributor to Streambank Erosion  
*Garey Fox, Oklahoma State University*
- 8:40 Spatial Extent, Timing, and Causes of Channel Incision in the Black Vermillion Watershed in NE Kansas  
*Richard A. Marston, Kansas State University*
- 9:00 Principles of Streambank Stabilization and Stream Restoration.  
*Jon Fripp, USDA-NRCS*
- 9:20 Historical Sediment Accretion and Stream Course Straightening along the South Fork of the Iowa River  
*Mark Tomer, USDA-ARS*
- 9:40 Quantification of In-Channel Sediment Contributions – Eastern and Central Kansas.  
*Tim Keane, Kansas State University*

*Concurrent Session IV-B. (p51)*  
Washington Park 2

Partnerships for Watershed Management  
Moderator: Mary Ann Rozum, USDA-CSREES

- 8:20 Stone Soup – Partnering for Water Quality in an Agricultural Landscape.  
*Sally Benjamin, USGS*
- 8:40 Integrating Economic and Environmental Factors using Models and Stakeholder Participation in a Performance Based Incentive Program  
*Claire Baffaut, USDA-ARS*
- 9:00 Kansas Sediment Baseline Research Strategy  
*Chris Gnau, Kansas Water Office*
- 9:20 Lake Champlain Basin- a transboundary model for watershed protection between Canada and the United States  
*Michaela Stickney, Vermont Lake Champlain Coordinator*
- 9:40 Neosho-Grand Lake Watershed: NGO-based Approach to Coordinating Efforts in Four States and Two EPA Regions  
*Kevin Gustavson, Oklahoma Conservation Commission*

*Concurrent Session IV-C. (p56)*  
Washington Park 3

Assessing Sources and Rates of Sedimentation and Impacts of BMPs  
Moderator: Thad Scott, University of Arkansas

- 8:20 Procedures and Problems in Estimated Sediment Sources and Yield in Large Watersheds.  
*Peter Allen, Baylor University*
- 8:40 Estimation of Sediment Sources in Agricultural and Urban Environments Using Chemical Tracers  
*Kyle Juracek, USGS*
- 9:00 RESSED -- An Online REServoir SEDimentation Survey Database for the U.S.  
*John Gray, USGS*
- 9:20 Procedural Documentation and Accuracy Assessment of Bathymetric Maps and Area/Capacity Tables for Small Reservoirs  
*Gary Wilson, USGS*
- 9:40 The CEAP Modeling System: Integrating Watershed Modeling with GIS  
*Paul Dyke, Texas A&M University*

### 10:00 – 10:20 am Break

10:20 – noon

**Working Session: Research, Education & Policy Needs**

**Research and Information Needs in Addressing Sedimentation and Eutrophication of Reservoirs in the Context of Climate Change**

- |   |                   |
|---|-------------------|
| 1) Sources and Rates of Sedimentation                       | Washington Park 1 |
| Presenter: Jurgen Garbrecht, USDA-ARS                       |                   |
| Facilitator: Jan Middendorf, Kansas State University – OEIE |                   |
| 2) Reservoir Storage and Water Quality                      | Washington Park 2 |
| Presenter: Eric Bernard, Kansas State University            |                   |
| Facilitator: Linda Thurston, Kansas State University – OEIE |                   |
| 3) Best Management Practices and Watershed Management       | Washington Park 3 |
| Presenter: Puneet Srivastava, Auburn University             |                   |
| Facilitator: Christa Smith, Kansas State University – OEIE  |                   |

The presenter will open each session with brief comments on climate change and likely impacts on reservoirs in the future. Each breakout group will have a facilitator and recorder. The facilitators for the session are from Kansas State University – College of Education, Office of Educational Innovation and Evaluation.

The overall objective of the working session is to summarize expert opinion on the future of reservoirs and especially the likely impacts of climate change on sedimentation.

The anticipated product of these discussions will provide the following for each focus area (sedimentation sources and rates, reservoir water supply and quality, and watershed management):

- Summary of issues, problems, solutions
- Priorities for research, extension, policies
- Recommended actions

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*There are three boards reserved in the poster area for the working session. The purpose of these is to gather questions and comments from conference participants. These posters will be staffed by the session facilitators.*

*A research, education and policy action plan is a product of this conference. Three posters are available in the poster presentation area for conference participants to post questions, comments and recommendations on these topics. This information will be summarized and used during the Wednesday work session. Work session facilitators will be available to assist conference participating post questions and recommendations.*

**Noon**

**Lunch (provided)**

Garden Terrace

**12:30 – 2:00 pm**

**Synopsis and Summary Session**

Washington Park

Summary of Recommendations of Working Sessions

Future Strategies to Create an ongoing Network

Recognitions, Thank You, and Adjourn

## Accepted Poster Presentations

Posters are in Washington Park Place 3.

Abstracts for these poster presentations can be found beginning on Page 62.

1. 1993 Flooding Damage Along Two Major Kansas Rivers  
*Bob Atchison, Kansas Forest Service, KSU*
2. A Long-Term Reservoir Monitoring Program Using Volunteer Field Scientists  
*Anthony Thorpe, Lakes of Missouri Volunteer Program*
3. Analyses of Factors Influencing Non-Volatile Suspended Solid Concentrations in Missouri Reservoirs  
*Daniel V. Obrecht, University of Missouri*
4. Computational Modeling of Sediment Transport and Morphology Change in Rivers and Streams  
*Yafei Jia, University of Mississippi*
5. Computing Time-Series Suspended-Sediment Concentrations And Loads From In-Stream Turbidity-Sensor And Streamflow Data  
*Patrick P. Rasmussen, U.S. Geological Survey*
6. Conservation Agriculture - The Solution Is Clear  
*William Kuenstler, USDA-NRCS*
7. Cost Effective, Automated, Water Quality Monitoring Systems Providing High Resolution Temporal and Spatial Data  
*Kevin McClurg, YSI Inc.*
8. Geo-Referenced Sonar Mapping and Quantification of Reservoir Sediment Depositions Associated with Erosion from Fort Hood, Texas  
*Dennis Hoffman, Texas AgriLife Research / Blackland Research and Extension Center*
9. Lake Restoration Methods  
*Dennis A. Haag, Burns & McDonnell*
10. Sedimentation and Contaminated Sediments Registry to Map Sediment Quality, Wildlife and Human Health Exposure, Risks, and Impacts  
*Sally L. Benjamin, NPWRC, USGS*
11. Significance of Nitrogen Retention by Reservoirs and Farm Ponds in the White River Basin of Missouri and Arkansas  
*Thad Scott, University of Arkansas*
12. Sources of Sediment within the Cheney Lake Watershed: Results of CEAP Special Emphasis Watershed Research  
*Lisa French, Cheney Lake Watershed*
13. Targeting a Watershed through Citizen Engagement  
*Stacie Minson, BCMSHR WRAPS*
14. Using K-State Watershed Manager to Cost-Effectively Target Cropland Best Management Practices  
*Josh Roe, Kansas State University*

Poster presenters are asked to be at their posters to discuss their presentation with other attendees during the Welcome/Poster Reception from 6p to 8p on Monday.

Posters will be up all day on Tuesday, September 15<sup>th</sup> for continued review and discussion by attendees. Poster take down is following the last session of the day on Tuesday, September 15<sup>th</sup> at 6:00 p.m.