

# JFIC2015

PROCEEDINGS OF THE

## JOINT FEDERAL INTERAGENCY CONFERENCE 2015



Proceedings of papers of the  
5th Federal Interagency Hydrologic Modeling Conference  
and the 10th Federal Interagency Sedimentation  
Conference  
Reno, NV, April 19 – 23, 2015

## PREFACE

The first Federal Interagency Sedimentation Conference (FISC) was held in 1947. Since then, they have been sponsored by the ACWI Subcommittee on Sedimentation (SOS) and held in 1963, 1976, 1986, 1991, 1996, 2001, 2006, and 2010. The Subcommittee on Hydrology (SOH) held their first Federal Interagency Workshop, “Hydrologic Modeling Demands for the 90s” in Fort Collins, Colorado, in 1993. That workshop was limited to Federal participants. Subsequent to that workshop, the SOH decided to hold a broader series of conferences and to open them to all interested parties. Federal Interagency Hydrologic Modeling Conferences were held in 1998, 2002, 2006, and 2010, and covered models addressing surface water quality and quantity issues.

These conferences have been well-attended, and together have produced over 2,100 technical papers. Combined, the Joint Conferences provide engineers and scientists the opportunity to discuss recent accomplishments in the physical, chemical, and biological aspects of sedimentation, and the development and use of hydrologic models addressing surface water quality and quantity issues. As a continuation of these conferences, SEDHYD again provides an interdisciplinary mix of scientists and managers from government agencies, academia, and the business community to present their recent accomplishments and progress in research and on technical developments related to sedimentation processes and the impact of sediment on the environment.

The Joint Conference follows a mixed set of formats including formal technical presentations, poster sessions, field trips, short courses, and model demonstrations. The Joint Conference is also hosting a *student* paper competition for cash prizes.

The Joint Conference is being held at the Peppermill Hotel and Resort, Reno, Nevada, USA. Reno is situated in a high desert just east of the beautiful Sierra Nevada. It lies on the western edge of the Great Basin, at an elevation of about 4,400 feet (1,300 m) above sea level. The downtown area (along with Sparks) occupies a valley informally known as Truckee Meadows. The area offers spectacular desert landscapes and ecosystems, as well as numerous indoor and outdoor recreational opportunities.

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Chair:	Tim Randle, US Bureau of Reclamation
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### *5<sup>th</sup> FIHMC*

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### *Suggested Citation:*

*In Proceedings of the 3rd Joint Federal Interagency Conference (10th Federal Interagency Sedimentation Conference and 5th Federal Interagency Hydrologic Modeling Conference), April 19 – 23, 2015, Reno, Nevada.*

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Gravel Deposits on Lower Mississippi River Sandbars  
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Sediment and Carbon Sequestration in the Atchafalaya River Basin, Louisiana  
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Saint-Venant Modeling for Large River Basins – Challenges and Data Needs  
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Synthetic Bathymetry Method Development, Validation and Application to five Pacific Northwest Rivers  
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Representing Green Infrastructure Management Techniques in Arid and Semi-arid Regions: Software Implementation and Demonstration Using the AGWA/KINEROS2 Watershed Model

Yoganand Korgaonkar, I. Shea Burns, Jane Barlow, D. Phillip Guertin, Carl Unkrich, David C. Goodrich, and William Kepner

Integrated Modeling Approach for Fate and Transport of Submerged Oil and Oil-Particle Aggregates in a Freshwater Riverine Environment

Faith A. Fitzpatrick, Rex Johnson, Zhenduo Zhu, David Waterman, Richard D. McCulloch, Earl J. Hayter, Marcelo H. Garcia, Michel Boufadel, Timothy Dekker, Jacob S. Hassan, and Kenneth Lee

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Demonstration of the Water Erosion Prediction Project (WEPP) Internet Interfaces and Web Services

Jim Frankenberger, Dennis Flanaga, Bill Elliot, and Eric Theller

Hydrologic Modeling System (HEC-HMS) Model Demonstration \*

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Modeling of a Non-Physical Fish Barrier, Demonstration

Marcela Politano, Ezequiel martin, Yong Lai, Merlynn Bender, and Dave Smith

River Analysis System (HEC-RAS) Model Demonstration \*

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RiverWare Demonstration

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RVR Meander – A Toolbox for River Meander Planform Design and Evaluation

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An Approximation of the Sediment Budget for the Tombigbee River and the Mobile River Basins

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Analyzing Streambank Erosion Using LIDAR \*

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Assessment of Fire Impacts on Hydrology and Erosion Using Field Experiments and the Rangeland Hydrology and Erosion Model \*

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Computation of Continuous Suspended-Sediment Concentration Records related to a Short-Term Drawdown of Fall Creek Lake, Upper Willamette Basin, Oregon \*

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Continuous Loosening and Transport of Sediment Deposition \*

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Continuous Turbidity Monitoring as a Tool for Evaluating Suspended Sediment Loading in the Middle Truskee River and Tributaries, Placer and Nevada Counties, California

Brian Hastings, David Shaw, Stefan Schuster, and Beth Christman

Creation and Maintenance of Dynamic Channels: Lessons Learned from the Large-Scale Restoration of a Regulated River \*

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Effects of Bedload Sampler Netting Properties on Hydraulic and Sampling Efficiency

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Estimating Sediment Yield on Disturbed Rangeland Using the Rangeland Hydrology and Erosion Model (RHEM) \*

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Evaluation of Surrogate Technology to Determine the Sediment Transport in the Raulerson Brothers Canal, Everglades National Park, Florida \*

Carrie Boudreau

Measures of Sediment in Minnesota

Greg Johnson and Bill Thompson

New Insights into the Effectiveness of a Lower Mississippi River Sediment Diversion Using a Decade of Field Observations and Morphological Modeling \*

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Online Modeling Tools Assist in Evaluating Postfire Flooding and Erosion Risk

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POTAMOD – Mobile-Bed Sediment-Transport Modeling Application for Use with SIAM and HEC-RAS

Amanda L. Cox, David S. Biedenbarn, Chester C. Watson, and Michelle Martin

Quantifying and Modeling Sediment Loads from Streambank Erosion along the Headwaters of Town Creek in Mississippi

John J. Ramirez-Avila, Eddy J. Langendoen, William McAnally, James L. Martin, Sandra L. Ortega-Achury, and Ron Bingner

Sediment and Nutrient Trapping on the Morganza Spillway During the 2011 Mississippi River Flood

Daniel E. Kroes, Edward R. Schenk, Gregory B. Noe, and Adam J. Benthem

Sediment Characteristics and Sediment Transport Modeling for the Saginaw River Navigation Channel

John Barkach, Carol J. Miller, James Selegean, and Fatemeh Babakhani

Sediment Chemistry Results from Sediment Cores Collected from the Escalante and San Juan River Deltas in Lake Powell, UT, in 2010-2011

Nancy Hornewer and Robert J. Hart

Sediment Fingerprinting to Delineate Sources of Sediment in an Urban Sub-Watershed Within the Chesapeake Bay Watershed

Anna C. Baker, A.C. Gellis, L.G. Sanisaca, and G.B. Noe

Sediment Transport on Cape Sable, Everglades National Park, Florida \*

Carrie Boudreau

Simulating Salinity Concentration at the Colorado River Basin Scale

James Prairie, David Neumann, Nicholas Williams, and Edith Zagona

State of the Practice of Sediment Management in Reservoirs: Minimizing Sedimentation and Removing Deposits

Kathleen M. Healy, Amanda L. Cox, Daniel M. Hanes, and Lisa G. Chambers

Surrogate Analysis and Index Development (SAID) and Real-Time Dissemination

Marian Domanski, Timothy Straub, Molly Wood, Mark Landers, Gary Wall, Steven Brady

The Influence of Sampling Technique on Bedload Prediction

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Utilizing GIS to Identify Sediment Fluctuations in Nambe Falls Reservoir, NM \*  
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Web-based Rangeland Hydrology and Erosion Model

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Evaluation of the HSR Model as a River Engineering Tool \*

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Identifying Sediment Sources in the Sediment TMDL Process

Allen C. Gellis, F.A. Fitzpatrick, J.P. Schubauer-Berigan, R.B. Landy, and L. Gorman-Sanisaca

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Timothy Randle and Jennifer Bountry

Example Applications of the Dam Removal Analysis Guidelines for Sediment \*

Jennifer Bountry

Role of Adaptive Sediment Management in Elwha Dam Removal

Jennifer Bountry, Patrick Crain, Josh Chenowith, Timothy Randle, and Andrew Ritchie

Elwha River Restoration: Reservoir Sediment Modeling in a GIS Framework

Timothy J. Randle, Jennifer Bountry, and Kurt B. Wille

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Sediment Monitoring During Short-Term Drawdowns of Fall Creek Lake, Upper Willamette Basin, Oregon  
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Time Series and Geospatial Data Integration for Reservoir Sedimentation Study that Incorporates Multiple Sedimentation Models and Rates for Convergent Validation  
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Understanding Drivers of Sediment Loads in a Morphologically Active Watershed: a Multidisciplinary Approach to Watershed Management  
Amanda Stone, James Selegean, Travis Dahl, Mark Riedel, and Alex Brunton

Middle Mississippi River Sedimentation Analysis at Tributary Junctions  
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Real-Time Forecasting Using HEC-HMS and MetVue  
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River Restoration Decision Analysis - 2D Hydrodynamic Approach to Project Priorities  
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TAPER: A Real-time Decision Support Tool for Balanced Flood Operation of the Arkansas River in Tulsa District

Jennifer Steffen, Jody Stringer, John Daylor, David Neumann, and Edith Zagona

Integrating Hydrologic and River Operations Modeling with Explicit Simulation of Groundwater and Surface-Water Exchange

Eric D. Morway, Richard G. Niswonger, and Enrique Triana

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Ronald D. Tejral and Sherry L. Hunt

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Effectiveness of Channel Improvement Work on the Mississippi River

Richard McComas and C. Fred Pinkard, Jr.

Simulation of Streamflow and Sediment Mobility in the Missouri River near Bismarck, North Dakota \*

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Developing a New Stream Metric for Comparing Stream Function Using a Bank-Floodplain Sediment Budget: a Case Study of Three Piedmont Streams

Edward R. Schenk, Cliff R. Hupp, Allen Gellis, and Greg Noe

Automated Updates to 2D Hydrologic Models for Open-pit Mining

Christopher M. Smemoe and Clark Barlow

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Low Water Planning in the Columbia River Basin

Thomas Chisholm

River Engineering Research Needs in the Corps of Engineers

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Modelling Extreme Flood Hydrology for Grand Coulee Dam through Collaboration with Multiple Government Agencies, Universities, and the Private Sector

Frank Dworak, John Englund, Marketa Elsner, and Ralph Klinger

## Development and Validation of a 2D Dam Break Process Model

Yafei Jia and Sherry Hunt

***Instructions:***

To view a paper, click on the corresponding title. Titles marked with an asterisk (\*) denote presentations for which full-length manuscripts were not submitted by the respective authors.

