Introduction

SEDHYD is the successor to the Federal Interagency Conferences on Sedimentation and Hydrologic Modeling. The first Federal Interagency Sedimentation Conference (FISC) was held in 1947. Since then, the Advisory Committee on Water Information, Subcommittee on Sedimentation (SOS) held the conference in 1963, 1976, 1986, 1991, 1996, 2001, 2006, 2010, 2015, and 2019. The Subcommittee on Hydrology (SOH) held their first Federal Interagency Workshop, “Hydrologic Modeling Demands for the 90s” in Fort Collins, Colorado, in 1993. Subsequent to that workshop, the SOH decided to hold a broader series of conferences. The Federal Interagency Hydrologic Modeling Conferences (FIHMC) were held in 1998, 2002, 2006, 2010, 2015, and 2019, and covered models addressing surface water quality and quantity issues. Beginning in 2006, the two conferences (FISC and FIHMC) were held jointly. In 2015, the SOS and SOH adopted the SEDHYD name for this combined conference.

Beginning in 2015, the SEDHYD Conference has been sponsored by SEDHYD, Inc. This non-profit organization is comprised of volunteers (federal retirees and others) who have led the planning of previous SEDHYD conferences in 2015, 2019, and 2023. The current SEDHYD, Inc., Board of Directors is comprised of the following people.

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These conferences were well attended and together have produced about 3,000 abstracts and technical papers. The conferences provide engineers, scientists, and program managers the opportunity to learn and exchange information about the latest developments and research related to sedimentation and hydrologic modeling, with additional emphasis on environmental conditions and conservation of natural resources. The SEDHYD 2023 Conference provided a platform for 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, hydrologic modeling, and the impact of sediment on the environment.

SEDHYD 2023 included technical presentations, a poster and computer modeling demonstration session, field trips, and short courses. SEDHYD 2023 also hosted a student paper competition for cash prizes, as well as a Young Professionals' Networking Reception.

The Technical Program for SEDHYD 2023 provided the opportunity for over 260 technical papers to be presented in concurrent sessions. Additionally, more than 20 posters were presented, along with eight Model demonstrations.

Eighteen short courses and five field trips were convened during the first and last days of the conference (Monday and Friday, May 8th and 12th). A unique opportunity afforded by SEDHD 2023 was that the full conference registration fee included a choice of either one field trip, one full-day short course, or two half-day short courses. The following is a listing of the Program-at-a-Glance. The Technical Proceedings are arranged according to this program.

SEDHYD 2023 Proceedings
Table of Contents

Program-at-a-Glance

– Field Trips – Short Courses – Opening Session
1A Climate Change I 1B Extreme Floods and Droughts II 1C Large River Geomorphology and Bedform Dynamics 1D Sediment Modeling and Management for Large Rivers and Navigation 1E Reservoir Sediment Management in Practice 1F Erosion and Geomorphic Adjustment 1G Sediment Decision-Making Support
2A Climate Change II 2B Flood Risk and Inundation Mapping I 2C Geomorphic Response to Disturbance 2D Hydraulic and Sediment Transport Modeling - Bed to Stream Network 2E Predicting and Tracking Reservoir Sedimentation 2F Sediment Impacts on Habitat 2G Watershed Sediment Management
3A Reservoir Operations and Management I 3B Flood Risk and Inundation Mapping II 3C Sediment Sourcing and Dynamics in Streams 3D Hydraulic and Sediment Transport Modeling for Riverine Infrastructure Design and Management 3E Sediment Flushing - Monitoring and Modeling 3F Acoustic Methods for Suspended Sediment Measurements 3G Dam Removal Sediment Transport Analyses
4A Reservoir Operations and Management II 4B Modeling Advances I 4C Stream Corridor Processes, Hazards, and Management 4D Managing, Modeling, and Measuring Sediment for Riverine Infrastructure I 4E River-Reservoir Interactions 4F Indirect Measurements of Bed and Total Loads 4G Dam Removal Economic, Geomorphic, and Ecologic Assessments
5A River Morphodynamics and Management (FRAME Tool) 5B Modeling Advances II 5C Applied Fluvial Geomorphology for River Management 5D Managing, Modeling, and Measuring Sediment for Riverine Infrastructure II 5E Feedbacks in Hydraulics, Morphology, and Erosion 5F Sediment Measurements at the Arroyo de los Pinos Research Station 5G Advancements in Bank Erosion Assessment
6A Frequency and Design Storm Analysis I 6B Modeling Advances III 6C Scour and Hydraulics Modeling at Bridge-Stream Crossings 6D Post-Fire Flood Evaluation and Management 6E Evaluating Restoration Programs 6F Optical and Indirect Sediment Measurements 6G Levee Erosion and the Contributions of Waves to Bank Erosion
7A Frequency and Design Storm Analysis III 7B Modeling Advances IV 7C Numerical Modeling Considerations 7D Hydraulic Modeling of Debris Flows, Sediment, and Floods 7E Physical Processes Informing Restoration and Habitat 7F Sediment Transport Estimation Methods 7G Observations of Sediment and Nutrient Dynamics
8A Frequency and Design Storm Analysis III 8B Modeling Advances V 8C Advanced Numerical Analysis Topics 8D Hydraulic Modeling of Wildfire Impacts 8E Watershed Scale Restoration Evaluation and Planning 8F Using Tracers to Characterize Sediment Sources and Dynamics 8G Modeling of Sediment and Nutrient Dynamics
9A Extreme Floods and Droughts I 9B Watershed Studies 9C Flood Hazard and Risk Analysis 9D Evaluation of Wildfire Impacts to Reservoirs and Water Supply 9E Process and Design Considerations for Restoration 9F Sediment Yield and Transport Modeling 9G Sediment Modeling Panel
– Computer Demonstrations – Poster Session – Short Courses – FieldTrips

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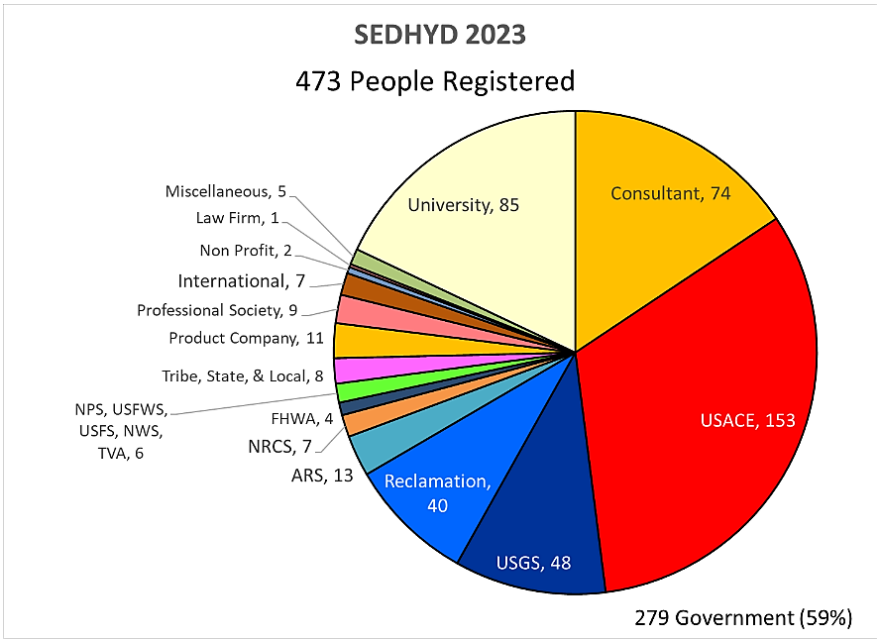

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SEDHYD 2023 Opening Session
May 9, 2023

Jerry W. Webb, P.E., D.WRE, West Consultants and USACE (retired), SEDHYD-2023 Chair**,** West Virginia	**Welcome**
Chandra S. Pathak, PhD, PE, F.ASCE, SEDHYD-2023 Conference Technical Program Chair, USACE (Retired), Washington, DC	**SEDHYD Technical Program**
Amanda Cox, PhD, P.E., SEDHYD-2023 Student Paper Competition Chair, Saint Louis University, Saint Louis, MO	**SEDHYD Student Awards**
Gregory Morris, PhD, PE, President, Gregory L Morris Engineering, San Juan, Puerto Rico	**Keynote Address: Reservoir Sedimentation**
Christopher Dunn, PE, D.WRE, Director, USACE Hydrologic Engineering Center, Davis, CA	**Keynote Address: Hydrologic Modeling**
Geoffrey Plumlee, Ph.D., Chief Scientist, USGS	**Keynote Address: USGS Mission Areas of Water, Hazards, & Ecosystems**
Katherine Skalak, PhD, Research Hydrologist, USGS, National Research Program, Reston, VA	**Diversity, Equity Inclusion, Accessibility**

Keynote Speakers

Gregory Morris, PhD, PE. — Reservoir Sedimentation

During the 20th century, large investments were made building dams and reservoirs. However, with reservoir sedimentation diminishing reservoir storage volume and encroaching onto outlet works, the 21st century increasingly will see investment focused on activities to manage sedimentation problems to sustain operation of this critical infrastructure. Sediment management was not considered in the original design of most dams and to sustain dams and reservoirs in operation requires new and non-traditional approaches for design, operation, and monitoring.

Dr. Morris will first describe sedimentation patterns in reservoirs and the benefits that are threatened. He will then outline key concepts for successfully sustaining long-term storage capacity and benefits on which today's society depends. Examples will be given from sites around the world.

Dr. Morris is a professional engineer with over 40 years of experience, working on design problems and lecturing in over 30 countries. Dr. Morris is co-author of the Reservoir Sedimentation Handbook and numerous peer-reviewed publications. He seeks to make the water resources community more aware of cost-effective design and operational practices that can sustain operation of critical reservoir infrastructure.

Christopher Dunn, PE, D.WRE. — Hydrologic Modeling

Mr. Dunn has been the Director of the Hydrologic Engineering Center (CEIWR-HEC) since May 2006. He leads a staff of 50, consisting primarily of hydrologic engineers, economists, and computer scientists, and oversees an annual budget of approximately $20 million. HEC's program focuses on hydrologic and hydraulic engineering, water management, and planning analysis encompassing research, software development, special projects, training and technology transfer, and technical assistance to USACE field offices, HQUSACE, and other agencies and nations.

The Center participates in a wide range of domestic, interagency, and international projects and activities including development of post wildfire hydrology and debris flow techniques; enhanced inundation mapping capabilities; technical assistance to Ecuador for the Rio Coca waterfall collapse; water management model development and support of the nationwide CWMS implementation; leadership of the Sustainable Rivers Program; collaboration with FEMA through the Future of Flood Risk Data initiative; implementation of Forecasted Informed Reservoir Operations, and training in numerous international locations such as Brazil, Korea, Panama, the Mekong, and India. HEC adjusted its internal business processes to utilize the DevOps practice of continuous integration/continuous deployment to improve the customer experience by providing better products faster while reducing stress to the HEC staff.

Mr. Dunn holds a Bachelor and a Master of Science degree in Civil Engineering from The Pennsylvania State University; is a registered Professional Engineer in the State of Oregon; an active member of the American Society of Civil Engineers (ASCE); and is a Diplomate of the American Academy of Water Resources Engineers (D.WRE). Mr. Dunn's technical specialties include flood risk management and impact analysis, planning analysis, risk analysis, river hydraulics, stream stability and scour, surface water hydrology, storm water management, urban drainage design, watershed analysis, IWRM, along with extensive teaching experience.

Geoffrey Plumlee, Ph.D. — USGS Mission Areas of Water, Hazards, & Ecosystems

As Chief Scientist of the U.S. Geological Survey (USGS), Dr. Geoff Plumlee provides strategic scientific vision and counsel to the USGS Director and Executive Leadership Team on inter- and transdisciplinary USGS science research priorities, opportunities, activities, capabilities, and partnerships, particularly those that cross multiple USGS Mission Areas and Regions. He serves as an executive science liaison for the USGS with the Department of the Interior (DOI) and other Federal agencies and is the USGS/DOI principal or representative on various Federal interagency committees such as the Subcommittee on Global Change Research and the National Science and Technology Council (NSTC) Joint Subcommittee on Environment, Innovation and Public Health. As reflected in his role as a USGS executive champion or co-champion of two USGS Employee Resource Groups, Geoff is committed to promoting a diverse and inclusive USGS workforce, and to enhancing USGS use-inspired science that better meets the needs of underrepresented and disadvantaged communities.

Geoff is a Fellow of the Geological Society of America (GSA), Past Chair of the GSA Geology and Health Division, a leader in the founding of the American Geophysical Union's (AGU) GeoHealth Section, past AGU Council Member, and past adjunct clinical assistant professor at the University of Colorado School of Public Health. He is author or coauthor of more than 140 scientific publications, including many in journals across a wide range of scientific disciplines. Geoff has received the Department of the Interior Superior and

Meritorious Service awards, the inaugural AGU GeoHealth Section Award, the GSA Geology and Health Division Distinguished Service Award, and the Society of Economic Geologists Waldemar Lindgren (Early Career Scientist) Award.

Katherine Skalak, PhD – Diversity, Equity Inclusion, Accessibility

Katherine Skalak is a Research Hydrologist in the Water Mission Area currently acting as the program manager for Integrated Water Prediction. She studied fluvial geomorphology and sediment transport, focused on understanding and predicting changes in the patterns and functions of landforms in response to human impacts and restoration efforts. In particular, dynamics of fine sediment and particle associated nutrients and contaminants on varying temporal and spatial scales, and management effects on fluvial systems. Dr. Skalak received her undergraduate degree in environmental science from St. Joseph's University. She received her master's degree in Geology from the University of Delaware. A National Science Foundation GK-12 fellow, she completed her Ph.D in Geological Sciences from the University of Delaware and started as a post-doctoral researcher at U.S. Geological Survey in 2009. She became a Research Hydrologist in 2011.

SEDHYD 2023 Student Paper Competition Winners

Avital Breverman from Colorado State University	"Addressing Mixed Populations in Flood Frequency Analyses: A Case Study in Eastern Pennsylvania"
Kenneth Lawson from the University of Vermont	"Characterizing Duration and Frequency of Flood Events Across Geomorphic Settings"
Phoebe White from Colorado State University	"Exploring the Applicability of Radar-Based Quantitative Precipitation Estimates for Emergency Assessment of Post-Wildfire Debris Flow Hazards in Colorado"

Twenty students participated in the SEDHYD 2023 Conference. Twelve student volunteers also provided Audio/Visual support for the technical sessions.

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
1A1 (64)	Climate Change I	Jane Harrell
Title of Paper/Presentation	Characterizing historical, current, and future hydrological variability through the development of meteorological and hydrological ensemble-based datasets	

Moderators	Authors	Organization	Country
Drew Loney	Jane Harrell	US Army Corps of Engineers	United States
Steven Yochum	Chris Frans	Bureau of Reclamation	United States
	Naoki Mizukami	National Center for Atmospheric Research	United States
	Ethan Gutmann	National Center for Atmospheric Research	United States
	Abby Smith	National Center for Atmospheric Research	United States
	Mike Warner	US Army Corps of Engineers	United States
	Andy Wood	National Center for Atmospheric Research	United States
	Bart Nijssen	University of Washington	United States

Session ID (paper)	Session Name	Presenter
1A2 (286)	Climate Change I	Drew Loney
Title of Paper/Presentation	Climate Model Selection for the Reclamation Central Valley Project (CVP) Long-Term Operation Study	

Moderators	Authors	Organization	Country
Drew Loney	Drew Loney	Bureau of Reclamation	United States
Steven Yochum	Michael Wright	Bureau of Reclamation	United States
	Kunxuan Wang	Bureau of Reclamation	United States
	Kevin Thielen	Bureau of Reclamation	United States
	Derya Sumer	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
1A3 (88)	Climate Change I	Jane Harrell
Title of Paper/Presentation	A comprehensive approach to assess current and future vulnerabilities in the Columbia River Reservoir System under climate change.	

Moderators	Authors	Organization	Country
Drew Loney	Jane Harrell	US Army Corps of Engineers	United States
Steven Yochum	Chris Frans	US Army Corps of Engineers	United States
	Jeremy Giovando	US Army Corps of Engineers	United States
	Reyn Aoki	US Army Corps of Engineers	United States
	Jason Chang	US Army Corps of Engineers	United States
	Keith Duffy	US Army Corps of Engineers	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
1A4 (281)	Climate Change I	Katherine Skalak
Title of Paper/Presentation	Integrated Water Prediction from regional to national scales	

Moderators	Authors	Organization	Country
Drew Loney	Jane Harrell	US Army Corps of Engineers	United States
Steven Yochum	Katherine Skalak	US Geological Survey	United States
	David Lesmes	US Geological Survey	United States
	Tim Schneider	National Center for Atmospheric Research	United States
	John Brakebill	US Geological Survey	United States
	Roland Viger	US Geological Survey	United States
	Hedeff Essaid	US Geological Survey	United States
	Aubrey Dugger	National Center for Atmospheric Research	United States
	David Gochis	National Center for Atmospheric Research	United States
	Roy Rasmussen	National Center for Atmospheric Research	United States
	Fei Chen	National Center for Atmospheric Research	United States
	Joseph Hughes	US Geological Survey	United States
	Ryan Cabell	National Center for Atmospheric Research	United States

Session ID (paper)	Session Name	Presenter
1B1 (54)	Extreme Floods and Droughts III	Michael Bartles
Title of Paper/Presentation	Variable Clark Unit Hydrograph Parameter Regression Equations for California	

Moderators	Authors	Organization	Country
Scott Hamshaw	Michael Bartles	U.S. Army Corps of Engineers - Hydrologic Engineering Center	United States
Gary Brunner	W. Daniel Meyersohn	CA Department of Water Resources - Division of Safety of Dams	United States

Session ID (paper)	Session Name	Presenter
1B2 (284)	Extreme Floods and Droughts III	Drew Loney
Title of Paper/Presentation	Machine Learning for Stochastic Flood Model Hydrograph Typing	

Moderators	Authors	Organization	Country
Scott Hamshaw	Drew Loney	Bureau of Reclamation	United States
Gary Brunner	Elise Madonna	Bureau of Reclamation	United States
	Amanda Stone	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
1B3 (181)	Extreme Floods and Droughts III	Scott Hamshaw
Title of Paper/Presentation	Regional Streamflow Drought Forecasting in the Colorado River Basin using Deep Neural Network Models	

Moderators	Authors	Organization	Country
Scott Hamshaw	Scott Hamshaw	U.S. Geological Survey	United States
Gary Brunner	Phillip Goodling	U.S. Geological Survey	United States
	Konrad Hafen	U.S. Geological Survey	United States
	John Hammond	U.S. Geological Survey	United States
	Ryan McShane	U.S. Geological Survey	United States
	Roy Sando	U.S. Geological Survey	United States
	Apoorva Shastry	U.S. Geological Survey	United States
	Caelan Simeone	U.S. Geological Survey	United States
	David Watkins	U.S. Geological Survey	United States
	Ellie White	U.S. Geological Survey	United States
	Michael Wieczorek	U.S. Geological Survey	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
1B4 (319)	Extreme Floods and Droughts III	Ali Dadkhah
Title of Paper/Presentation	Watershed analysis and feature selection based on performance of deep learning streamflow drought models in the Colorado river basin	

Moderators	Authors	Organization	Country
Scott Hamshaw	Ali Dadkhah	University of Vermont	United States
Gary Brunner	Donna Rizzo	University of Vermont	United States
	Kristen Underwood	University of Vermont	United States

Session ID (paper)	Session Name	Presenter
1C1 (142)	Large River Geomorphology and Bedform Dynamics	Drew C. Baird
Title of Paper/Presentation	Change Middle Rio Grande Channel Morphology Bosque Del Apache National Wildlife Refuge to Elephant Butte Reservoir	

Moderators	Authors	Organization	Country
Daniel Wren	Drew C. Baird	Technical Service Center, U.S. Bureau of Reclamation	United States
Michael Mansfield	Joshua Sperry	Colorado State University	United States
	Andrew Schied	Colorado State University	United States
	Ari Posner	Albuquerque Area Office, U.S. Bureau of Reclamation	United States
	Nathan Holste	Technical Service Center, U.S. Bureau of Reclamation	United States
	Pierre Julien	Colorado State University	United States

Session ID (paper)	Session Name	Presenter
1C2 (104)	Large River Geomorphology and Bedform Dynamics	Daniel Wren
Title of Paper/Presentation	Bedform Analysis for select flows in the Mississippi River at Vicksburg, Mississippi	

Moderators	Authors	Organization	Country
Daniel Wren	Daniel Wren	USDA-ARS	United States
Michael Mansfield	Tate McAlpin	USACE-ERDC	United States
	James Smith	USDA-ARS	United States
	Keaton Jones	USACE-ERDC	United States
	Roger Kuhnle	USDA-ARS	United States
	David Abraham	USACE-ERDC (retired)	United States

Session ID (paper)	Session Name	Presenter
1C3 (12)	Large River Geomorphology and Bedform Dynamics	Melissa Shinbein
Title of Paper/Presentation	Physical and Numerical Model Testing of Boulder Cluster Configurations in Urban Channels	

Moderators	Authors	Organization	Country
Daniel Wren	Melissa Shinbein	Bureau of Reclamation	United States
Michael Mansfield	Nathan Holste	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
1C4 (110)	Large River Geomorphology and Bedform Dynamics	Caroline Elliot
Title of Paper/Presentation	Bedform distributions and dynamics in a large, channelized river: Implications for benthic ecological processes	

Moderators	Authors	Organization	Country
Daniel Wren	Caroline Elliott	U.S. Geological Survey	United States
Michael Mansfield	Robert Jacobson	U.S. Geological Survey	United States
	Bruce Call	U.S. Geological Survey	United States
	Maura Roberts	U.S. Geological Survey	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
1D1 (242)	Sediment Modeling and Management for Large Rivers and Navigation	Aaron Buesing
Title of Paper/Presentation	2-D Adaptive Hydraulics (AdH) Modeling at the Crossing of the Gulf Intercoastal Waterway (GIWW) and the Brazos River	

Moderators	Authors	Organization	Country
Andrew McCoy	Aaron W. Buesing	U.S. Army Corps of Engineers	United States
Chris Bahner			United States

Session ID (paper)	Session Name	Presenter
1D2 (271)	Sediment Modeling and Management for Large Rivers and Navigation	Mitch Price
Title of Paper/Presentation	Sediment Impact Assessment of Columbia River System Operations	

Moderators	Authors	Organization	Country
Andrew McCoy	Mitch Price	CENWW	United States
Chris Bahner	Chris Nygaard	CENWW	United States

Session ID (paper)	Session Name	Presenter
1D3 (278)	Sediment Modeling and Management for Large Rivers and Navigation	Keaton Jones
Title of Paper/Presentation	Victoria Bend Navigation Assessment: Analysis, Modeling, Construction, and Monitoring	

Moderators	Authors	Organization	Country
Andrew McCoy	Keaton Jones	USACE ERDC CHL	United States
Chris Bahner	Viviana Williamson	USACE MVK	United States
	Coral Cruz	USACE MVK	United States
	Casey Mayne	USACE ERDC CHL	United States
	Braxton Chewning	USACE ERDC CHL	United States

Session ID (paper)	Session Name	Presenter
1D4 (213)	Sediment Modeling and Management for Large Rivers and Navigation	Andrew McCoy
Title of Paper/Presentation	Mississippi River Port Dynamics at West Memphis	

Moderators	Authors	Organization	Country
Andrew McCoy	Andrew McCoy	HDR	United States
Chris Bahner	Mark Forest	HDR	United States
	Gary Brunner	HDR	United States
	Preston Snyder	USACE	United States
	Holly Enlow	USACE	United States

Session ID (paper)	Session Name	Presenter
1E1 (216)	Reservoir Sediment Management in Practice	Gregory Morris
Title of Paper/Presentation	Hurricanes and Sediment Management at Loíza Reservoir, Puerto Rico	

Moderators	Authors	Organization	Country
Jianchun Huang	Gregory Morris	GLM Engineering	United States
Abigail Eckland	Juan Portalatín	GLM Engineering	United States

Session ID (paper)	Session Name	Presenter
1E3 (196)	Reservoir Sediment Management in Practice	Martin Teal
Title of Paper/Presentation	ICOLD Reservoir Sedimentation Bulletins: Case Studies and Bypass Systems	

Moderators	Authors	Organization	Country
Jianchun Huang	Martin Teal	WEST Consultants, Inc.	United States
Abigail Eckland			United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
1E4 (155)	Reservoir Sediment Management in Practice	Jianchun Huang
Title of Paper/Presentation	Modeling of Paonia Reservoir Drawdown Flushing	

Moderators	Authors	Organization	Country
Jianchun Huang	Jianchun Huang	Bureau of Reclamation	United States
Abigail Eckland			United States

Session ID (paper)	Session Name	Presenter
1F1 (269)	Erosion and Geomorphic Adjustment	Pablo Espinoza-Girón
Title of Paper/Presentation	Coca-River Regressive Erosion Phenomenon, Causes and Impacts, Overview of the Problem	

Moderators	Authors	Organization	Country
Paul Boyd Stanford Gibson	Pablo Espinoza-Girón	Comisión Ejecutora Río Coca, Corporación Eléctrica del Ecuador, Quito, Ecuador	Ecuador
	Paul Boyd	USACE	United States

Session ID (paper)	Session Name	Presenter
1F2 (223)	Erosion and Geomorphic Adjustment	Adriel McConnell
Title of Paper/Presentation	Reconnaissance of the Rio Coca Regressive Erosion and Building Partnership	

Moderators	Authors	Organization	Country
Paul Boyd Stanford Gibson	Calvin Creech	USACE	Panama
	Adriel McConnell	USACE	United States
	Stanford Gibson	USACE HEC	United States

Session ID (paper)	Session Name	Presenter
1F3 (246)	Erosion and Geomorphic Adjustment	Pedro Barrera Crespo
Title of Paper/Presentation	Modelling and projection of the morphological evolution of the Coca River after the collapse of the San Rafael waterfall	

Moderators	Authors	Organization	Country
Paul Boyd Stanford Gibson	Pedro Barrera Crespo	Corporación Eléctrica del Ecuador (CELEC EP), Quito, Ecuador	Ecuador

Session ID (paper)	Session Name	Presenter
1F4 (244)	Erosion and Geomorphic Adjustment	Jeremy Sharp
Title of Paper/Presentation	Physical Model of Head-Cut Mitigation Alternative on the Rio Coca	

Moderators	Authors	Organization	Country
Paul Boyd Stanford Gibson	Jeremy Sharp	ERDC	United States
	Stanford Gibson	HEC	United States
	Yamiretsy Pagan-Albelo	ERDC	United States
	Efrain Ramos-Santiago	ERDC	United States
	Dana Moses	LRH	United States

Session ID (paper)	Session Name	Presenter
1G1 (172)	Sediment Decision-Making Support	Weimin Li
Title of Paper/Presentation	Sea-going Navigation Channel Sedimentation Formula	

Moderators	Authors	Organization	Country
Michael Gerlach	Weimin Li	NW Division of USACE	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
1G2 (328)	Sediment Decision-Making Support	Qimiao Lu
Title of Paper/Presentation	A Comprehensive Modeling System for Mid-Breton Sedimentation Diversion Project	

Moderators	Authors	Organization	Country
Michael Gerlach	Brad Barth	Coastal Protection and Restoration Authority, Louisiana	United States
	Yarzar Tun	W.F. Baird and Associates	Canada
	Qimiao Lu	W.F. Baird and Associates	Canada
	Rebecca Quan	W.F. Baird and Associates	Canada
	Fred Scott	W.F. Baird and Associates	Canada
	Rob Nairn	W.F. Baird and Associates	Canada
	Jim Lewis	W.F. Baird and Associates	Canada
	Matthew Hoy	Stantec Consulting Services Inc.	United States
	Scott Peyton	Stantec Consulting Services Inc.	United States
	Adam Witt	Stantec Consulting Services Inc.	United States

Session ID (paper)	Session Name	Presenter
1G3 (258)	Sediment Decision-Making Support	Matthew Hoy
Title of Paper/Presentation	Model Application for Design of the Mid-Breton Sediment Diversion Project	

Moderators	Authors	Organization	Country
Michael Gerlach	Brad Barth	Coastal Protection and Restoration Authority, Louisiana	United States
	Matthew Hoy	Stantec Consulting Services Inc.	United States
	Scott Peyton	Stantec Consulting Services Inc.	United States
	Adam Witt	Stantec Consulting Services Inc.	United States
	Qimiao Lu	W.F. Baird and Associates	Canada
	Rob Nairn	W.F. Baird and Associates	Canada
	Rebecca Quan	W.F. Baird and Associates	Canada

Session ID (paper)	Session Name	Presenter
1G4 (304)	Sediment Decision-Making Support	Kathleen Harris
Title of Paper/Presentation	River Training Structure Design Study for Stabilization at Bonanza Bar	

Moderators	Authors	Organization	Country
Michael Gerlach	Kathleen Harris	USACE ERDC	United States

Session ID (paper)	Session Name	Presenter
2A1 (253)	Climate Change II	Katheen D. Holman
Title of Paper/Presentation	Exploring Impacts of Future Climate Change on Dam Flood Risk Across the Western US	

Moderators	Authors	Organization	Country
Kathleen D. Holman Katherine Skalak	Kathleen D. Holman	Bureau of Reclamation	United States
	Amanda Stone	Bureau of Reclamation	United States
	Andy Newman	NCAR	United States
	Daniel Wright	University of Wisconsin-Madison	United States

Session ID (paper)	Session Name	Presenter
2A2 (26)	Climate Change II	Jessica LeRoy
Title of Paper/Presentation	Effects of climate change on the hydrologic and hydraulic response of the Caulks Creek basin, Wildwood, Missouri	

Moderators	Authors	Organization	Country
Kathleen D. Holman Katherine Skalak	Jessica LeRoy	USGS	United States
	David Heimann	USGS	United States
	Tyler Burk	USGS	United States
	Charles Cigrand	USGS	United States
	Kyle Hix	USGS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
2A4 (302)	Climate Change II	Julia Zimmerman
Title of Paper/Presentation	Resilience Quantification of Nonstationary and Compounding Threats	

Moderators	Authors	Organization	Country
Kathleen D. Holman	Julia Zimmerman	USACE-ERDC-CHL	United States
Katherine Skalak	Brandon Boyd	USACE-ERDC-CHL	United States
	Gary Brown	USACE-ERDC-CHL	United States
	Sukhwan Chung	USACE-ERDC-EL	United States

Session ID (paper)	Session Name	Presenter
2B1 (62)	2B Flood Risk and Inundation Mapping I	Wesley Crosby
Title of Paper/Presentation	Producing Rapid and Simplified Inundations with Limited Information	

Moderators	Authors	Organization	Country
Jim Barton	Wesley Crosby	US Army Corps of Engineers	United States
Blair Greimann			

Session ID (paper)	Session Name	Presenter
2B2 (224)	2B Flood Risk and Inundation Mapping I	Quentin Travis
Title of Paper/Presentation	Web-mapping application of flow runout for WOTUS calculations	

Moderators	Authors	Organization	Country
Jim Barton	Quentin Travis	WEST Consultants, Inc.	United States
Blair Greimann	Jeremy Johnson	Matrix New World Engineering	United States
	William Greenslade	Matrix New World Engineering	United States
	Brian Wahlin	WEST Consultants, Inc.	United States

Session ID (paper)	Session Name	Presenter
2B3 (33)	2B Flood Risk and Inundation Mapping I	Steven Yokum
Title of Paper/Presentation	Flood Variability in the Western United States: Overview and Examples	

Moderators	Authors	Organization	Country
Jim Barton	Steven Yochum	U.S. Forest Service	United States
Blair Greimann	David Levinson	U.S. Forest Service	United States

Session ID (paper)	Session Name	Presenter
2B4 (198)	2B Flood Risk and Inundation Mapping I	Jason Schneider
Title of Paper/Presentation	Lower Missouri River 2D Hydraulic Modeling	

Moderators	Authors	Organization	Country
Jim Barton	Anish Pradhananga	Stantec	United States
Blair Greimann	Lori Schrader	Stantec	United States
	Jason Schneider	Stantec	United States

Session ID (paper)	Session Name	Presenter
2C1 (234)	Geomorphic Response to Disturbance	Holly Enlow
Title of Paper/Presentation	Geomorphic changes following channel modifications on the St. Francis River	

Moderators	Authors	Organization	Country
Paul Grams	Holly Enlow	USACE	United States
Caroline Elliott	Sarah Girdner	USACE	United States
	J. Michael Lamport	USACE	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
2C2 (45)	Geomorphic Response to Disturbance	Paul Grams
Title of Paper/Presentation	Waterfalls in Reservoirs: Tracking the Development of Nickpoints in the Sediments of Declining Reservoirs	

Moderators	Authors	Organization	Country
Paul Grams	Paul Grams	US Geological Survey	United States
Caroline Elliott	Robert Tusso	US Geological Survey	United States

Session ID (paper)	Session Name	Presenter
2C3 (126)	Geomorphic Response to Disturbance	Chris Svendsen
Title of Paper/Presentation	Missouri River at Florence Bend Bedrock Excavation	

Moderators	Authors	Organization	Country
Paul Grams	Chris Svendsen	USACE Omaha District	United States
Caroline Elliott	Dan Pridal	USACE Omaha District	United States
	Rick Podraza	USACE Omaha District	United States

Session ID (paper)	Session Name	Presenter
2C4 (207)	Geomorphic Response to Disturbance	
Title of Paper/Presentation	Regional Trends in Vertical Adjustment, Bank Erosion and Effectiveness of Erosion-Control Measures: Returning to West Tennessee 40-Years Later	

Moderators	Authors	Organization	Country
Paul Grams	Andrew Simon	Stantec	United States
Caroline Elliott	Jennifer Hammond	Stantec	United States
	Martin Griffin	Stantec	Australia
	David Blackwood	West Tennessee River Basin Authority	United States

Session ID (paper)	Session Name	Presenter
2D1 (114)	Hydraulic and Sediment Transport Modeling - Bed to Stream Network	Jonathan Czuba
Title of Paper/Presentation	Control of flow sequence and spatial distribution of debris flow input on river network modeling	

Moderators	Authors	Organization	Country
Keaton Jones	Muneer Ahammad	Virginia Tech	United States
Aaron Hurst	Jonathan A. Czuba	Virginia Tech	United States
	Scott David	Utah State University	United States
	Brendan P. Murphy	Simon Fraser University	Canada
	Patrick Belmont	Utah State University	United States

Session ID (paper)	Session Name	Presenter
2D2 (214)	Hydraulic and Sediment Transport Modeling - Bed to Stream Network	Eric DeWitt
Title of Paper/Presentation	Effects of Instream Boulders on Bed Load Transport	

Moderators	Authors	Organization	Country
Keaton Jones	Eric DeWitt	Clarkson University	United States
Aaron Hurst	Abul Baki	Clarkson University	United States
	Weiming Wu	Clarkson University	United States

Session ID (paper)	Session Name	Presenter
2D3 (89)	Hydraulic and Sediment Transport Modeling - Bed to Stream Network	Jonathan Czuba
Title of Paper/Presentation	Estimating embeddedness from bankfull shear velocity in gravel streambeds to assess sediment impacts on aquatic habitat and biota	

Moderators	Authors	Organization	Country
Keaton Jones	Sierra Smith	Virginia Tech	United States
Aaron Hurst	Jonathan Czuba	Virginia Tech	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
2D4 (221)	Hydraulic and Sediment Transport Modeling - Bed to Stream Network	Benjamin Abban
Title of Paper/Presentation	Application of SRH-2D to Predict Water and Sediment Delivery from a Watershed	

Moderators	Authors	Organization	Country
Keaton Jones	Benjamin Abban	Bureau of Reclamation	United States
Aaron Hurst	Yong Lai	Bureau of Reclamation	United States
	Marcela Politano	U.S. Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
2E1 (180)	Predicting and Tracking Reservoir Sedimentation	Deanna Meyer
Title of Paper/Presentation	Estimating Reservoir Sedimentation using Deep Learning and the USACE RSI System Dataset	

Moderators	Authors	Organization	Country
Melissa Foster	Deanna Meyer	Saint Louis University	United States
Martin Teal	Amanda Cox	Saint Louis University	United States
	Alejandra Botero-Acosta	Saint Louis University	United States
	Vasit Sagan	Saint Louis University	United States
	Ibrahim Demir	University of Iowa	United States
	Marian Muste	University of Iowa	United States
	Chandra Pathak	US Army Corps of Engineers	United States
	Paul Boyd	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
2E2 (35)	Predicting and Tracking Reservoir Sedimentation	Alejandra Botero Acosta
Title of Paper/Presentation	Anomaly Detection of Records in a Reservoir Sedimentation Dataset	

Moderators	Authors	Organization	Country
Melissa Foster	Alejandra Botero Acosta	Water Institute, Saint Louis University	United States
Martin Teal	Amanda Cox	Water Institute, Saint Louis University	United States
	Vasit Sagan	Geospatial Institute, Department of Earth and Atmospheric Science, Saint Louis University	United States
	Ibrahim Demir	Hydroscience & Engineering, University of Iowa	United States
	Marian Muste	Hydroscience & Engineering, University of Iowa	United States
	Paul Boyd	US Army Corps of Engineers	United States
	Chandra Pathak	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
2E3 (187)	Predicting and Tracking Reservoir Sedimentation	Abigail Eckland
Title of Paper/Presentation	Predicting Reservoir Sedimentation and Capacity Loss Across the United States	

Moderators	Authors	Organization	Country
Melissa Foster	Abigail Eckland	Technical Service Center, US Bureau of Reclamation, Denver, CO	United States
Martin Teal	Melissa Foster	Technical Service Center, US Bureau of Reclamation, Denver, CO	United States
	Aaron Hurst	Technical Service Center, US Bureau of Reclamation, Denver, CO	United States
	Irina Overeem	University of Colorado Boulder, Institute of Arctic and Alpine Research	United States
	Mussie Beyene	Technical Service Center, US Bureau of Reclamation, Denver, CO	United States

Session ID (paper)	Session Name	Presenter
2E4 (190)	Predicting and Tracking Reservoir Sedimentation	Toby Minear
Title of Paper/Presentation	Developing an automated method to estimate reservoir sedimentation at ~30,000 reservoirs across the United States	

Moderators	Authors	Organization	Country
Melissa Foster	Melissa Foster	Bureau of Reclamation	United States
Martin Teal	Aaron Hurst	Bureau of Reclamation	United States
	Abigail Eckland	Bureau of Reclamation, University of Colorado	United States
	D. Nathan Bradley	Bureau of Reclamation	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
2F1 (275)	Sediment Impacts on Habitat	Rebecca Braz
Title of Paper/Presentation	Utilizing Hydrophones to Detect Streambed Mobilization in the Wild and Scenic Reach of the Rio Chama	

Moderators	Authors	Organization	Country
Paul Kinzel	Rebecca Braz	Bureau of Reclamation	United States
Travis Hardee	Mathieu Marineau	USGS	United States
	Chris Ely	USGS	United States

Session ID (paper)	Session Name	Presenter
2F2 (22)	Sediment Impacts on Habitat	Paul Kinzel
Title of Paper/Presentation	Repeat Bathymetric Surveys and Model Simulations of Sedimentation Processes Near Fish Spawning Placements, Detroit and St. Clair Rivers, Michigan	

Moderators	Authors	Organization	Country
Paul Kinzel	Paul Kinzel	U.S. Geological Survey	United States
Travis Hardee	Greg Kennedy	U.S. Geological Survey	United States
	Taylor Dudunake	U.S. Geological Survey	United States

Session ID (paper)	Session Name	Presenter
2F3 (279)	Sediment Impacts on Habitat	Simon Gathier-Fauteux
Title of Paper/Presentation	Continuous and Real-time Sedimentation Monitoring within Spawning Substrates on the Nechako River, BC	

Moderators	Authors	Organization	Country
Paul Kinzel	Andre Zimmermann	Northwest Hydraulic Consultants	Canada
Travis Hardee	Simon Gauthier-Fauteux	Northwest Hydraulic Consultants	Canada
	Steve McAdam	BC Ministry of Land and Water Resource Stewardship	United States

Session ID (paper)	Session Name	Presenter
2F4 (215)	Sediment Impacts on Habitat	Colin Byrne
Title of Paper/Presentation	Reservoir Delta Morphodynamics and Implications for Fish Passage in the Yakima River Basin	

Moderators	Authors	Organization	Country
Paul Kinzel	Colin Byrne	United States Bureau of Reclamation	United States
Travis Hardee	Nathan Holste	United States Bureau of Reclamation	United States
	Timothy Randle	United States Bureau of Reclamation	United States
	Richard Visser	United States Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
2G1 (56)	Watershed Sediment Management	John Shelley
Title of Paper/Presentation	Lessons Learned from Bank Stabilization Failures	

Moderators	Authors	Organization	Country
John Shelley	Chris Haring	USACE ERDC-CHL	United States
Gregory Morris	John Shelley	USACE Kansas City District	United States

Session ID (paper)	Session Name	Presenter
2G2 (109)	Watershed Sediment Management	Joel Homan
Title of Paper/Presentation	Assessment and Characterization of Ephemeral Stream Channel Stability in the Grand Valley, Colorado, 2018-22	

Moderators	Authors	Organization	Country
John Shelley	Joel Homan	USGS	United States
Gregory Morris			

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
2G3 (163)	Watershed Sediment Management	Matthew Stoklosa
Title of Paper/Presentation	White Sands Missile Range Thurgood Canyon Watershed	

Moderators	Authors	Organization	Country
John Shelley	Matthew Stoklosa	Construction Engineering Research Laboratory	United States
Gregory Morris	Daniel Gambill	Construction Engineering Research Laboratory	United States
	Heidi Howard	Construction Engineering Research Laboratory	United States

Session ID (paper)	Session Name	Presenter
2G4 (50)	Watershed Sediment Management	Nathan Chrisman
Title of Paper/Presentation	Case Studies Evaluating the New Reservoir Volume Reduction Tool in HEC-HMS	

Moderators	Authors	Organization	Country
John Shelley	Nathan Chrisman	USACE	United States
Gregory Morris	Jay Pak	USACE	United States
	John Shelley	USACE	United States
	Michael Mansfield	USACE	United States

Session ID (paper)	Session Name	Presenter
3A1 (139)	Reservoir Operations and Management I	Cary Talbot
Title of Paper/Presentation	Phase III of Forecast-Informed Reservoir Operations in the USACE: National Expansion Pathfinder	

Moderators	Authors	Organization	Country
Kendra Russell	Cary Talbot	US Army Corps of Engineers	United States
Rachel Schultz	Joe Forbis	US Army Corps of Engineers	United States
	Marty Ralph	Center for Western Weather and Water Extremes	United States

Session ID (paper)	Session Name	Presenter
3A2 (280)	Reservoir Operations and Management I	Drew Loney
Title of Paper/Presentation	Evaluating the Feasibility for Forecast Informed Reservoir Operations (FIRO) Improvements at Reclamation Facilities	

Moderators	Authors	Organization	Country
Kendra Russell	Drew Loney	Bureau of Reclamation	United States
Rachel Schultz	Douglas Woolridge	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
3A3 (140)	Reservoir Operations and Management I	Patrick Noe
Title of Paper/Presentation	Using Forecast Informed Reservoir Operations to Optimize the Tradeoffs between Water Supply and Flood Risk	

Moderators	Authors	Organization	Country
Kendra Russell	Patrick Noe	Precision Water Resources Engineering	United States
Rachel Schultz	Caleb Erkman	Federal Water Master's Office	United States

Session ID (paper)	Session Name	Presenter
3A4 (218)	Reservoir Operations and Management I	Kendra Russell
Title of Paper/Presentation	Improving Directed Releases from NYC Reservoirs in the Upper Delaware River Basin	

Moderators	Authors	Organization	Country
Kendra Russell	Kendra Russell	USGS	United States
Rachel Schultz	Paul Barlow	USGS	United States
	Stacey Archfield	USGS	United States
	Noah Knowles	USGS	United States
	Elizabeth Hittle	USGS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
3B1 (170)		Landon Erickson
Title of Paper/Presentation	Innovative Flood Hazard Information: Utilizing Multiple Lines of Evidence to Improve Flood Hazard Awareness and Resiliency	

Moderators	Authors	Organization	Country
Ann Banitt Chandra Pathak	Landon Erickson	U.S. Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
3B3 (73)		Tim Stephens
Title of Paper/Presentation	Integrating nonstationarity and uncertainty for quantifying flood protection reliability	

Moderators	Authors	Organization	Country
Ann Banitt Chandra Pathak	Tim Stephens	Dynamic Solutions, LLC	United States
	Steve Sanborn	Dynamic Solutions, LLC	United States
	Christopher Wallen	Dynamic Solutions, LLC	United States
	Brian Bledsoe	Institute for Resilient Infrastructure Systems, University of George	United States

Session ID (paper)	Session Name	Presenter
3B4 (128)		Ann Bannitt
Title of Paper/Presentation	Lower Mississippi River Probabilities: A Collaborative Investigation	

Moderators	Authors	Organization	Country
Ann Banitt Chandra Pathak	Ann Banitt	USACE	United States
	David Welch	NWS Lower Mississippi River Forecast Center	United States
	Leigh Youngblood	USACE	United States
	Michael Bartles	USACE-HEC	United States
	Greg Karlovits	USACE-HEC	United States
	Brian Breaker	USACE	United States
	Brian Astifan	National Weather Service	United States
	Brian Connelly	National Weather Service	United States
	Jim Lewis	USACE	United States

Session ID (paper)	Session Name	Presenter
3C1 (149)	Sediment Sourcing and Dynamics in Streams	Gerard Salter
Title of Paper/Presentation	Confluence of ephemeral tributaries with the mid-Rio Grande	

Moderators	Authors	Organization	Country
David Gaeuman Jonathan Laronne	Jonathan Laronne	Ben Gurion University	Israel
	Daniel Cadol	New Mexico Tech	United States
	Sharllyn Pimentel	Dudek	United States
	Dave Varyu	U.S. Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
3C2 (20)	Sediment Sourcing and Dynamics in Streams	Jonathan Laronne
Title of Paper/Presentation	Numerical modeling of mud transport, storage and release on the Colorado River, Arizona	

Moderators	Authors	Organization	Country
David Gaeuman Jonathan Laronne	Gerard Salter	Southwest Biological Science Center, USGS	United States
	David Topping	Southwest Biological Science Center, USGS	United States
	Scott Wright	cbec, inc. eco engineering	United States
	Jonathan Nelson	USGS (retired)	United States
	Erich Mueller	Southern Utah University	United States
	Paul Grams	Southwest Biological Science Center, USGS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
3C3 (38)	Sediment Sourcing and Dynamics in Streams	Michael Mansfield
Title of Paper/Presentation	Estimating gravel particle sizes based on field photographs using the Rock Observation Calculator (ROC)	

Moderators	Authors	Organization	Country
David Gaeuman	Michael Mansfield	USACE, Kansas City District	United States
Jonathan Laronne	John Shelley	USACE, Kansas City District	United States
	Lesli Key	USACE, Kansas City District	United States
	Kelsey Fall	USACE, ERDC	United States

Session ID (paper)	Session Name	Presenter
3C4 (91)	Sediment Sourcing and Dynamics in Streams	David Gaeuman
Title of Paper/Presentation	Dynamics of shear stress reversals and riffle maintenance in a gravel-bed stream	

Moderators	Authors	Organization	Country
David Gaeuman	David Gaeuman	Yurok Tribe	United States
Jonathan Laronne	Kyle De Juilio	Yurok Tribe	United States
	D. Nate Bradley	U.S. Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
3D1 (164)	3D Hydraulic and Sediment Transport Modeling for Riverine Infrastructure Design and Management	John Stofleth
Title of Paper/Presentation	An assessment of changes to physical habitat resulting from the 2017 Oroville Dam spillway incident: An application of a 2D sediment transport model to characterize potential effects	

Moderators	Authors	Organization	Country
John Stofleth	John Stofleth	cbec, Inc.	United States
Ryan Cahill	Doug Shields	cbec, Inc.	United States
	Gavin Downs	Santa Clara Valley Water District	United States
	Toby Stegman	cbec, Inc.	United States
	Chris Bowles	cbec, Inc.	United States

Session ID (paper)	Session Name	Presenter
3D2 (137)	3D Hydraulic and Sediment Transport Modeling for Riverine Infrastructure Design and Management	Jesse Brown
Title of Paper/Presentation	Investigating the Impact of Approach Channel Sediment Removal on Spillway Performance	

Moderators	Authors	Organization	Country
John Stofleth	Jesse Brown	US Army Corps of Engineers	United States
Ryan Cahill	Adam Wenck	US Army Corps of Engineers	United States
	Roger Kay	US Army Corps of Engineers	United States
	Daniel Pridal	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
3D3 (183)	3D Hydraulic and Sediment Transport Modeling for Riverine Infrastructure Design and Management	Dragoslav Stefanovic
Title of Paper/Presentation	Sediment Transport Modeling for the Colorado River Aqueduct Conduit Erosion Control Improvement Project	

Moderators	Authors	Organization	Country
John Stofleth	Justin Griffiths	WEST Consultants, Inc.	United States
Ryan Cahill	Dragoslav Stefanovic	HDR Inc.	United States
	Filippo Bressan	WEST Consultants, Inc.	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
3D4 (192)	3D Hydraulic and Sediment Transport Modeling for Riverine Infrastructure Design and Management	Aaron Hurst
Title of Paper/Presentation	Potential erosion of an unlined rock spillway at New Melones Dam, CA	

Moderators	Authors	Organization	Country
John Stofleth	Aaron Hurst	USBR Technical Services Center	United States
Ryan Cahill	Melissa Foster	USBR Technical Services Center	United States
	Bryan Holmes	USBR California-Great Basin Region Geology Branch	United States

Session ID (paper)	Session Name	Presenter
3E1 (36)	Sediment Flushing - Monitoring and Modeling	Yong Lai
Title of Paper/Presentation	Sediment Modeling of Hydraulic Flushing: General Guidelines	

Moderators	Authors	Organization	Country
Achilleas Tsakiris	Yong Lai	U.S. Bureau of Reclamation	United States
Robert Hilldale	Jianchun Huang	U.S. Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
3E2 (245)	Sediment Flushing - Monitoring and Modeling	Achilleas Tsakiris
Title of Paper/Presentation	Quantifying Reservoir Sediment Flushing at the Cowlitz Falls Project	

Moderators	Authors	Organization	Country
Achilleas Tsakiris	Achilleas Tsakiris	Northwest Hydraulic Consultants	United States
Robert Hilldale	Brad Hall	Northwest Hydraulic Consultants	United States
	Ali Habibzadeh	Northwest Hydraulic Consultants	Canada
	Edward Fordham	Northwest Hydraulic Consultants	United States

Session ID (paper)	Session Name	Presenter
3E3 (4)	Sediment Flushing - Monitoring and Modeling	Timothy Randle
Title of Paper/Presentation	Reservoir Sedimentation Economics Model (RSEM)	

Moderators	Authors	Organization	Country
Achilleas Tsakiris	Timothy J. Randle	Bureau of Reclamation	United States
Robert Hilldale	Todd Gaston	Bureau of Reclamation	United States
	Razieh Anari	Brigham Young University	United States

Session ID (paper)	Session Name	Presenter
3E4 (266)	Sediment Flushing - Monitoring and Modeling	Razieh Anari
Title of Paper/Presentation	Economic Analysis of Reservoir Sedimentation in Gavins Point Dam	

Moderators	Authors	Organization	Country
Achilleas Tsakiris	Razieh Anari		Canada
Robert Hilldale	Rollin Hotchkiss	Brigham Young University	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
3F1 (15)	Acoustic Methods for Suspended Sediment Measurements	Molly Wood
Title of Paper/Presentation	State of the Science and Decision Support for Measuring Suspended Sediment with Acoustic Instrumentation	

Moderators	Authors	Organization	Country
Molly Wood Tate McAlpin	Molly Wood	U.S. Geological Survey	United States
	Joel Groten	U.S. Geological Survey	United States
	Timothy Straub	U.S. Geological Survey	United States
	Daniel Whealdon-Haught	U.S. Geological Survey	United States
	Ronald Griffiths	U.S. Geological Survey	United States
	Justin Boldt	U.S. Geological Survey	United States
	Zulimar Lucena	U.S. Geological Survey	United States
	Jeb Brown	U.S. Geological Survey	United States
	Steven Suttles	U.S. Geological Survey	United States
	Patrick Dickhudt	U.S. Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
3F2 (19)	Acoustic Methods for Suspended Sediment Measurements	Zulimar Lucena
Title of Paper/Presentation	Evaluating methods for fouling attenuation shifts to acoustic backscatter data used in suspended-sediment computations	

Moderators	Authors	Organization	Country
Molly Wood Tate McAlpin	Zulimar Lucena	U.S. Geological Survey	United States
	Michael Lee	U.S. Geological Survey	United States
	Jeffery East	U.S. Geological Survey	United States

Session ID (paper)	Session Name	Presenter
3F3 (46)	Acoustic Methods for Suspended Sediment Measurements	Timothy J. Randle
Title of Paper/Presentation	Investigating the effects of Diel Patterns of Attenuation for an Ultrasonic Suspended-Sediment Measurement System	

Moderators	Authors	Organization	Country
Molly Wood Tate McAlpin	Wayne Carpenter	University of Mississippi, National Center for Physical Acoustics	United States
	Bradley Goodwiller	University of Mississippi, National Center for Physical Acoustics	United States
	Daniel Wren	USDA, Agriculture Research Service, National Sedimentation Laboratory	United States
	Jason Taylor	USDA, Agriculture Research Service, National Sedimentation Laboratory	United States

Session ID (paper)	Session Name	Presenter
3F4 (270)	Acoustic Methods for Suspended Sediment Measurements	Jeb Brown
Title of Paper/Presentation	Preliminary analysis of a horizontal multifrequency hydroacoustic device designed for surrogate measurements of suspended sediment concentration: the Horizontal Acoustic Sediment Current Profiler	

Moderators	Authors	Organization	Country
Molly Wood Tate McAlpin	Jeb Brown	USGS	United States
	Tristan Austring	USGS	United States
	Rodney Richards	USGS	United States
	Tyson Hatch	USGS	United States
	Joel Homan	USGS	United States

Session ID (paper)	Session Name	Presenter
3G1 (307)	Dam Removal Sediment Transport Analyses	Waleska Echevarria-Doyle
Title of Paper/Presentation	Sensitivity Analysis of Sediment Transport Analyses in Dam Removal Applications	

Moderators	Authors	Organization	Country
Chris Nygaard R. Andrew Goodwin	Waleska Echevarria-Doyle	USACE-ERDC	United States
	S. Kyle McKay	USACE-ERDC	United States
	Susan Bailey	USACE-ERDC	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
3G2 (220)	Dam Removal Sediment Transport Analyses	Stanford Gibson
Title of Paper/Presentation	HEC-RAS Sediment Simulation of a Snake River Dam Removal Alternative	

Moderators	Authors	Organization	Country
	Stanford Gibson	Hydrologic Engineering Center	United States
R. Andrew Goodwin	Christopher Nygaard	USACE - Portland District	United States

Session ID (paper)	Session Name	Presenter
3G3 (277)	Dam Removal Sediment Transport Analyses	Liam Schenk
Title of Paper/Presentation	Estimating fluvial sediment mass flux in the lower Klamath River basin prior to removal of four hydroelectric dams, California	

Moderators	Authors	Organization	Country
Chris Nygaard	Liam Schenk	U.S. Geological Survey	United States
R. Andrew Goodwin	Patrick Haluska	U.S. Geological Survey	United States
	Jennifer Curtis	U.S. Geological Survey	United States
	Amy East	U.S. Geological Survey	United States
	Chauncey Anderson	U.S. Geological Survey	United States
	Grant Johnson	Karuk Tribe Department of Natural Resources	United States
	Thomas Starkey-Owens	Yurok Tribe Environmental Program	United States

Session ID (paper)	Session Name	Presenter
3G4 (276)	Dam Removal Sediment Transport Analyses	Chris Nygaard
Title of Paper/Presentation	System Wide Sediment Impacts of CRSO Snake River Dam Removal Alternative	

Moderators	Authors	Organization	Country
Chris Nygaard	Chris Nygaard	USACE-CENWP	United States
R. Andrew Goodwin	Scott Brown	USACE-CENWS	United States
	Stanford Gibson	USACE-HEC	United States
	Mitch Price	USACE-CENWW	United States

Session ID (paper)	Session Name	Presenter
4A1 (309)	Reservoir Operations and Management II	Chris Delaney
Title of Paper/Presentation	Accounting for Uncertainty of Ensemble Streamflow Predictions in the Operations of Prado Reservoir in Riverside County, California	

Moderators	Authors	Organization	Country
Thomas Chisholm	Chris Delaney	Center for Western Weather and Water Extremes	United States
Adam Witt	Rob Hartman	Rob Hartman Consulting	United States
	John Mendoza	Sonoma Water	United States
	Greg Woodside	Orange County Water District	United States
	Adam Hutchinson	Orange County Water District	United States
	Marty Ralph	Center for Western Weather and Water Extremes	United States

Session ID (paper)	Session Name	Presenter
4A2 (93)	Reservoir Operations and Management II	Thomas Chisolm
Title of Paper/Presentation	Comparing Reservoir Refill for Power Generation and Flood Risk Management	

Moderators	Authors	Organization	Country
Thomas Chisholm	Thomas Chisholm	USACOE Northwestern Division	United States
Adam Witt	Weimin Li	USACOE Northwestern Division	United States

Session ID (paper)	Session Name	Presenter
4A3 (211)	Reservoir Operations and Management II	Adam Witt
Title of Paper/Presentation	From Reservoir to Riffle - A Multi-Model Approach to Assess Water Supply and Environmental Benefits of the Pacheco Reservoir Expansion Project	

Moderators	Authors	Organization	Country
Thomas Chisholm	Adam Witt	Stantec Consulting Services Inc - Sacramento, CA	United States
Adam Witt	Kathleen Low	Santa Clara Valley Water District	United States
	Jeff Micko	Micko Consulting	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
4A4 (134)	Reservoir Operations and Management II	David Neuman
Title of Paper/Presentation	Demonstration of RiverWare, RiverSMART and RiverWISE Decision Support Tools	

Moderators	Authors	Organization	Country
Thomas Chisholm	David Neumann	Center for Advanced Decision Support for Water and Environmental Systems, University of Colorado, Boulder	United States
Adam Witt	Edith Zagona	Center for Advanced Decision Support for Water and Environmental Systems, University of Colorado, Boulder	United States

Session ID (paper)	Session Name	Presenter
4B1 (260)	Modeling Advances I	Michael Scurlock
Title of Paper/Presentation	Reservoir PMF SMA analysis of a Rocky Mountain system – Santa Fe, NM	

Moderators	Authors	Organization	Country
Mahesh Maskey	KC Robinson	AECOM	United States
Sean Smith	Michael Scurlock	AECOM	United States

Session ID (paper)	Session Name	Presenter
4B2 (152)	Modeling Advances I	Mahesh Maskey
Title of Paper/Presentation	Calibration of APX Model to Assess Farm-scale Runoff for Grazing Operation and Uncertainty Analysis	

Moderators	Authors	Organization	Country
Mahesh Maskey	Mahesh Maskey	ORISE/USDA-ARS	United States
Sean Smith	Amanda Nelson	USDA-ARS	United States
	Brian Northup	USDA-ARS	United States
	Javier Osario Leyton	Texas A&M University	United States
	Daniel Moriasi	USDA-ARS	United States

Session ID (paper)	Session Name	Presenter
4B3 (199)	Modeling Advances I	Michael Follum
Title of Paper/Presentation	A Decision Support Tool to help Water Managers in the Colorado River Basin in Utah	

Moderators	Authors	Organization	Country
Mahesh Maskey	Michael Follum	Follum Hydrologic Solutions, LLC	United States
Sean Smith	Shane Coors	Precision Water Resources Engineering	United States
	Tony Powell	Precision Water Resources Engineering	United States
	Bart Leeflang	Central Utah Water Conservancy District	United States

Session ID (paper)	Session Name	Presenter
4B4 (318)	Modeling Advances I	Shaurya Swami
Title of Paper/Presentation	Forecasting River Turbidity using Innovative Machine Learning Techniques	

Moderators	Authors	Organization	Country
Mahesh Maskey	Shaurya Swami	University of Vermont	United States
Sean Smith	Kristen Underwood	University of Vermont	United States
	Safwan Wshah	University of Vermont	United States
	Wae D. Davis	New York City Department of Environmental Protection	United States
	Donna Rizzo	University of Vermont	United States

Session ID (paper)	Session Name	Presenter
4C1 (209)	Stream Corridor Processes, Hazards, and Management	David Pizzi
Title of Paper/Presentation	Fluvial geomorphic considerations of annual maximum series versus partial duration series for flood frequency analyses	

Moderators	Authors	Organization	Country
David Pizzi	David Pizzi	Alden Research Laboratory	United States
Holly Enlow	Chad Morris	Alden Research Laboratory	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
4C2 (186)	Stream Corridor Processes, Hazards, and Management	Joel Sholtes
Title of Paper/Presentation	Mapping Fluvial Geomorphic Hazards in Valley Margins: The Fluvial Hazard Buffer	

Moderators	Authors	Organization	Country
David Pizzi	Joel Sholtes	University of Colorado, Boulder	United States
Holly Enlow	Katie Jagt	Watershed Science and Design, PLLC	United States
	Michael Blazewicz	Round River Design, LLC	United States

Session ID (paper)	Session Name	Presenter
4C3 (202)	Stream Corridor Processes, Hazards, and Management	Taylor Dudunake
Title of Paper/Presentation	An Assessment of Kootenai River Channel Migration and Associated Encroachment of Riparian Habitat	

Moderators	Authors	Organization	Country
David Pizzi	Taylor Dudunake	U.S. Geological Survey	United States
Holly Enlow	Megan Kenworthy	U.S. Geological Survey	United States
	Matt Daniels	River Design Group	United States

Session ID (paper)	Session Name	Presenter
4C4 (97)	Stream Corridor Processes, Hazards, and Management	Andrew Nelson
Title of Paper/Presentation	Proactive River Corridor Definition: Recommendations for a Process-based Approach	

Moderators	Authors	Organization	Country
David Pizzi	Andrew Nelson	Northwest Hydraulic Consultants	United States
Holly Enlow	Jeremy Payne	Northwest Hydraulic Consultants	United States
	Tim Abbe	Northwest Hydraulic Consultants	United States
	Vaughn Collins	Northwest Hydraulic Consultants	United States

Session ID (paper)	Session Name	Presenter
4D1 (291)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure I	Ashley Dudill
Title of Paper/Presentation	Continuous Riverbed Monitoring around Raked Bridge Piles in the Fraser River	

Moderators	Authors	Organization	Country
Cary Talbot	Andre Zimmermann	Northwest Hydraulic Consultants	Canada
Zachary Clifton	Ryan Bradley	Northwest Hydraulic Consultants	Canada
	Tim Argast	Northwest Hydraulic Consultants	Canada
	Ashley Dudill	Northwest Hydraulic Consultants	Canada

Session ID (paper)	Session Name	Presenter
4D2 (133)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure I	Robert Ettema
Title of Paper/Presentation	Livebed scour at bendway weirs and rock vanes formed of loose rock	

Moderators	Authors	Organization	Country
Cary Talbot	Robert Ettema	Colorado State University	United States
Zachary Clifton	Alex Wittmershaus	Northwest Hydraulic Consultants	United States
	Parker Maddocks	Halff Engineers	United States
	Christopher Thornton	Colorado State University	United States
	Nathan Holste	US Bureau of Reclamation	United States
	Drew Baird	US Bureau of Reclamation	United States
	David Varyu	US Bureau of Reclamation	United States
	Ari Posner	US Bureau of Reclamation	United States
	Robert Padilla	US Bureau of Reclamation	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
4D3 (21)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure I	Nathan Holste
Title of Paper/Presentation	Side Channel Formation, Evolution, and Persistence	

Moderators	Authors	Organization	Country
Cary Talbot	Nathan Holste	Bureau of Reclamation	United States
Zachary Clifton	Aaron Hurst	Bureau of Reclamation	United States
	Colin Byrne	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
4D4 (308)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure I	Drew Loney
Title of Paper/Presentation	Recent Developments and Applications of the OSTRICH Calibration Toolkit	

Moderators	Authors	Organization	Country
Cary Talbot	Drew Loney	Bureau of Reclamation	United States
Zachary Clifton	Douglas Wooldridge	Bureau of Reclamation	United States
	Kristin Mikkelson	Bureau of Reclamation	United States
	L. Shawn Matott	University of Buffalo	United States
	Julie Mai	University of Waterloo	Canada

Session ID (paper)	Session Name	Presenter
4E1 (324)	River-Reservoir Interactions	Michael Detering
Title of Paper/Presentation	How to win the major U.S. Competition on Sustainable Reservoir Sediment Management and Proceed	

Moderators	Authors	Organization	Country
Noah Snyder	Michael Detering	D-Sediment	Germany
Kent Collins	Lara Gehrmann	Hülskens Sediments	Germany
	Thomas Gross	Hülskens Sediments	Germany

Session ID (paper)	Session Name	Presenter
4E2 (248)	River-Reservoir Interactions	Mackenzie Keith
Title of Paper/Presentation	Coupled upstream-downstream geomorphic responses to deep reservoir drawdowns at a Fall Creek Dam, Oregon	

Moderators	Authors	Organization	Country
Noah Snyder	Mackenzie Keith	USGS	United States
Kent Collins	Rose Wallick	USGS	United States
	Laurel Stratton Garvin	USGS	United States
	Gabriel Gordon	USGS	United States

Session ID (paper)	Session Name	Presenter
4E3 (96)	River-Reservoir Interactions	Noah Snyder
Title of Paper/Presentation	Rates and processes of sedimentation in two USACE reservoirs	

Moderators	Authors	Organization	Country
Noah Snyder	Noah Snyder	Boston College	United States
Kent Collins	Claire Hines	Boston College	United States
	Julie Bahr	Boston College	United States
	Ethan Baxter	Boston College	United States
	Mark Behn	Boston College	United States
	Ian Dulin	Boston College	United States
	Dylan Seal	Boston College	United States
	Christopher Sheehan	Boston College	United States
	Ilan Valencius	Boston College	United States
	Travis Dahl	US Army Engineer Research & Development Center	United States
	Taylor Cagle	US Army Engineer Research & Development Center	United States
	Kelsey Fall	US Army Engineer Research & Development Center	United States
	Amanda Tritinger	US Army Engineer Research & Development Center	United States
	Timothy Cook	University of Massachusetts, Amherst	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
4E4 (27)	River-Reservoir Interactions	John Shelley
Title of Paper/Presentation	An Upcoming Pilot Project for Reservoir Sediment Removal via Water Injection Dredging	

Moderators	Authors	Organization	Country
Noah Snyder Kent Collins	John Shelley	USACE Kansas City District	United States

Session ID (paper)	Session Name	Presenter
4F1 (262)	Indirect Measurements of Bed and Total Loads	D. Nathan Bradley
Title of Paper/Presentation	Measuring Gravel Bar Mobility in a Large River with Tracer Gravel	

Moderators	Authors	Organization	Country
Roger Kuhnle Zulimar Lucena	D. Nathan Bradley	U.S. Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
4F2 (125)	Indirect Measurements of Bed and Total Loads	Roger Kuhnle
Title of Paper/Presentation	Continuous measurement of bed load on Goodwin Creek using impact plates	

Moderators	Authors	Organization	Country
Roger Kuhnle Zulimar Lucena	Roger Kuhnle	National Sedimentation Laboratory, USDA-ARS	United States
	James Smith	Department of Geography, Simon Fraser University	Canada
	Daniel Wren	National Sedimentation Laboratory, USDA-ARS	United States

Session ID (paper)	Session Name	Presenter
4F3 (179)	Indirect Measurements of Bed and Total Loads	Tate McAlpin
Title of Paper/Presentation	ISSDOTv2 Methodology, Uncertainty, and Applications for Measuring Bed-Load Transport	

Moderators	Authors	Organization	Country
Roger Kuhnle Zulimar Lucena	Tate McAlpin	US Army Corps of Engineers	United States
	Daniel Wren	USDA	United States
	Keaton Jones	US Army Corps of Engineers	United States
	Roger Kuhnle	USDA	United States
	Anthony Jackson	US Army Corps of Engineers	United States
	David Abraham	US Army Corps of Engineers (Retired)	United States
	Clinton Willson	Louisiana State University	United States

Session ID (paper)	Session Name	Presenter
4F4 (82)	Indirect Measurements of Bed and Total Loads	Jonathan AuBuchon
Title of Paper/Presentation	Acoustic Measurements on a Shallow, Sand-Bed River: A Case Study from the Rio Grande	

Moderators	Authors	Organization	Country
Roger Kuhnle Zulimar Lucena	Jonathan AuBuchon	USACE	United States
	David Abraham	USACE	United States
	Ari Posner	Bureau of Reclamation	United States
	Jeb Brown	USGS	United States
	Tony Jackson	USACE	United States
	Ron Griffiths	USGS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
4G1 (320)	Dam Removal Economic, Geomorphic, and Ecologic Assessments	Jennifer Bountry
Title of Paper/Presentation	Dam Removal Cost Databases and Drivers	

Moderators	Authors	Organization	Country
Jennifer Bountry	Jennifer Bountry	Bureau of Reclamation	United States
Liam Schenk	Jeff Duda	USGS	United States
	Desiree Tullos	Oregon State	United States
	Tim Randle	Bureau of Reclamation	United States
	Al Jansen	Bureau of Reclamation	United States
	Suman Jumani	USACE Post Doc	United States
	Kyle McCay	USACE	United States
	Susan Bailey	USACE	United States

Session ID (paper)	Session Name	Presenter
4G2 (189)	Dam Removal Economic, Geomorphic, and Ecologic Assessments	Jennifer Curtis
Title of Paper/Presentation	UAS mapping of surface roughness and digital grain size to assess pre-dam removal baseline conditions along the mainstem Klamath River corridor below Iron Gate Dam, California	

Moderators	Authors	Organization	Country
Jennifer Bountry	Jennifer Curtis	USGS	United States
Liam Schenk	Jacob Taylor	USGS	United States
	Michael Bartley	USGS	United States
	Christian Estrada	USGS	United States
	Patrick Haluska	USGS	United States
	Sierra Keller	USGS	United States

Session ID (paper)	Session Name	Presenter
4G3 (84)	Dam Removal Economic, Geomorphic, and Ecologic Assessments	R. Andrew Goodwin
Title of Paper/Presentation	Near-term fish movement prediction in rivers and reservoirs: 25 years supporting federal and nonfederal water operations and engineering design projects.	

Moderators	Authors	Organization	Country
Jennifer Bountry Liam Schenk	R. Andrew Goodwin	U.S. Army Engineer R&D Center, Environmental Laboratory	United States

Session ID (paper)	Session Name	Presenter
4G4 (315)	Dam Removal Economic, Geomorphic, and Ecologic Assessments	Curtis Miller
Title of Paper/Presentation	Evaluation of Fish Bypass Channel Velocity and Depth Pertaining to Meeting Biological Criteria	

Moderators	Authors	Organization	Country
Jennifer Bountry	Curtis Miller	USACE	United States
Liam Schenk	Chris Svendsen	USACE	United States
	David Pridal	USACE	United States

Session ID (paper)	Session Name	Presenter
5A1 (98)	River Morphodynamics and Management (FRAME Tool)	Philip Soar
Title of Paper/Presentation	Future River Analysis & Management Evaluation (FRAME): A new approach to forecasting long-term morphological evolution and response in rivers	

Moderators	Authors	Organization	Country
Mike Sixta	Philip Soar	University of Portsmouth	United Kingdom
Don Frevert	Amanda Cox	Saint Louis University	United States
	David Biedenharn	USACE CHL-ERDC	United States
	Travis Dahl	USACE CHL-ERDC	United States
	Colin Thorne	University of Nottingham	United Kingdom
	Christopher Haring	USACE CHL-ERDC	United States
	Charles Little	Mendrop Engineering Resources, LLC	United States
	Peter Downs	University of Portsmouth	United Kingdom

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
5A2 (174)	River Morphodynamics and Management (FRAME Tool)	David Biedenharn
Title of Paper/Presentation	Scenario Testing of the FRAME Tool on a 200 Mile Reach of the Lower Mississippi River	

Moderators	Authors	Organization	Country
Mike Sixta	David Biedenharn	USACE CHL-ERDC, Vicksburg	United States
Don Frevert	Amanda Cox	St Louis University	United States
	Travis Dahl	USACE CHL-ERDC, Vicksburg	United States
	Chris Haring	USACE CHL-ERDC, Vicksburg	United States
	Charles Little	Mendrop Engineering	United States
	Philip Soar	Portsmoth University	United Kingdom
	Colin Thorne	University of Nottingham, UK	United Kingdom

Session ID (paper)	Session Name	Presenter
5A3 (59)	River Morphodynamics and Management (FRAME Tool)	Peter Downs
Title of Paper/Presentation	From *forecast* to *foresight*: a decision-support framework for visioning channel evolution in river management	

Moderators	Authors	Organization	Country
Mike Sixta	Peter Downs	University of Portsmouth	United Kingdom
Don Frevert	David Biedenharn	USACE ERDC	United States
	Amanda Cox	St Louis University	United States
	Travis Dahl	USACE ERDC	United States
	Christopher Haring	USACE ERDC	United States
	Charlie Little	Mendrop Engineering Services	United States
	Philip Soar	University of Portsmouth	United Kingdom
	Colin Thorne	Wolf Water Resources	United States

Session ID (paper)	Session Name	Presenter
5A4 (83)	River Morphodynamics and Management (FRAME Tool)	Colin Thorne
Title of Paper/Presentation	The Alluvial Phase Space Diagram (APSD) and its potential application in the FRAME-RUBRIC model	

Moderators	Authors	Organization	Country
Mike Sixta	Colin Thorne	University of Nottingham, UK	United Kingdom
Don Frevert	David Biedenharn	USACE CHL-ERDC, Vicksburg	United States
	Amanda Cox	St Louis University	United States
	Travis Dahl	USACE CHL-ERDC, Vicksburg	United States
	Chris Haring	USACE-CHL-ERDC	United States
	Charlie Little	Mendrop Engineering	United States
	Sam Valman	University of Nottingham	United Kingdom
	Casey Mayne	USACE CHL-ERDC, Vicksburg	United States
	Phil Soar	Portsmouth University	United Kingdom
	Sam Valman	University of Nottingham	United Kingdom

Session ID (paper)	Session Name	Presenter
5B1 (283)	Modeling Advances II	Drew Loney
Title of Paper/Presentation	An Application of Neural Networks to Improve Water Quality Forecasting in the Colorado-Big Thompson Project	

Moderators	Authors	Organization	Country
Joseph Lange	Drew Loney	Bureau of Reclamation	United States
Michael Follum	Lindsay Bearup	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
5B2 (48)	Modeling Advances II	Joseph Lange
Title of Paper/Presentation	GIS Tool for Post Fire Hydrology Data	

Moderators	Authors	Organization	Country
Joseph Lange	Joseph Lange	USDA NRCS	United States
Michael Follum	Robert Burken	USDA NRCS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
5B3 (122)	Modeling Advances II	Sayjro Nouwakpo
Title of Paper/Presentation	Mapping on-farm irrigation systems in southern Idaho	

Moderators	Authors	Organization	Country
Joseph Lange	Sayjro Nouwakpo	USDA-ARS	United States
Michael Follum	David Bjorneberg	USDA-ARS	United States
	Kenneth McGwire	Desert Research Institute	United States

Session ID (paper)	Session Name	Presenter
5B4 (87)	Modeling Advances II	Xiaofeng Liu
Title of Paper/Presentation	pyHMT2D: A python package for automating 2D computational hydraulics modeling	

Moderators	Authors	Organization	Country
Joseph Lange	Xiaofeng Liu	Penn State University, State College, PA	United States
Michael Follum	Ali Mahdavi Mazdeh	Penn State University, State College, PA	United States

Session ID (paper)	Session Name	Presenter
5C1 (292)	Applied Fluvial Geomorphology for River Management	Drew C. Baird
Title of Paper/Presentation	Geomorphic Evolution Model for the Middle Rio Grande, NM	

Moderators	Authors	Organization	Country
Tim Randle	Drew C. Baird	Technical Service Center, U.S. Bureau of Reclamation	United States
Taylor Dudunake	Joshua Sperry	Colorado State University	United States
	Andrew Schied	Colorado State University	United States
	Ari Posner	Albuquerque Area Office, U.S. Bureau of Reclamation	United States
	Nathan Holste	Technical Service Center, U.S. Bureau of Reclamation	United States
	Pierre Y. Julien	Colorado State University	United States

Session ID (paper)	Session Name	Presenter
5C2 (243)	Applied Fluvial Geomorphology for River Management	Venkatesh Merwade
Title of Paper/Presentation	RIMORPHIS: River Morphology Information System	

Moderators	Authors	Organization	Country
Tim Randle	Venkatesh Merwade	Purdue University	United States
Taylor Dudunake	Amanda Cox	Saint Louis University	United States
	Ibrahim Demir	University of Iowa	United States
	J. Toby Minear	University of Colorado	United States
	Marian Muste	University of Iowa	United States

Session ID (paper)	Session Name	Presenter
5C3 (314)	Applied Fluvial Geomorphology for River Management	Chris Haring
Title of Paper/Presentation	FluvialGeomorph: Geomorphic Watershed Assessments	

Moderators	Authors	Organization	Country
Tim Randle	Chris Haring	USACE-ERDC	United States
Taylor Dudunake	Autumn Murray	USACE-ERDC	United States
	Mike Dougherty	USACE-MVR	United States
	Tom Darby	USACE-MVR	United States
	Alexi Karon	USACE-MVR	United States

Session ID (paper)	Session Name	Presenter
5C4 (250)	Applied Fluvial Geomorphology for River Management	Keaton Jones
Title of Paper/Presentation	Lower Mississippi River Slope and Stream Power	

Moderators	Authors	Organization	Country
Tim Randle	Keaton Jones	USACE ERDC CHL	United States
Taylor Dudunake	Casey Mayne	USACE ERDC CHL	United States
	David Biedenharn	USACE ERDC CHL	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
5D1 (301)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure II	Justin Gragg
Title of Paper/Presentation	Wait, the Bed Moves? - Necessity and Implications of Mobile-Bed Hydraulic Modeling for Flood Control Purposes, the San Lorenzo River, CA	

Moderators	Authors	Organization	Country
Jerry Bernard	Justin Gragg	Environmental Science Associates	United States
Gerard Salter	Louis White	Environmental Science Associates	United States
	James Gregory	Environmental Science Associates	United States
	Yashar Rafati	Environmental Science Associates	United States

Session ID (paper)	Session Name	Presenter
5D2 (90)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure II	Soonkie Nam
Title of Paper/Presentation	Sustainable Hydropower Dam Operation Considering Downstream Riverbank Stability	

Moderators	Authors	Organization	Country
Jerry Bernard	Soonkie Nam	Georgia Southern University	United States
Gerard Salter	Marte Gutierrez	Colorado School of Mines	United States
	Panayiotis Diplas	Lehigh University	United States
	John Petrie	U.S. Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
5D3 (53)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure II	Zachary Clifton
Title of Paper/Presentation	Examining Terrestrial and Subterranean Sediment Sources and Transport Processes in an Urban Sewershed with an Entirely Buried Stream Network, Washington, D.C., USA	

Moderators	Authors	Organization	Country
Jerry Bernard	Zachary Clifton	US Geological Survey	United States
	Allen Gellis	US Geological Survey	United States
Gerard Salter	Leah Staub	US Geological Survey	United States
	Matthew Cashman	US Geological Survey	United States
	Christopher Conaway	US Geological Survey	United States
	Cecilia Lane	DC Department of Energy and the Environment	United States
	David Pilat	DC's Department of Energy and the Environment	United States

Session ID (paper)	Session Name	Presenter
5D4 (127)	Managing, Modeling, and Measuring Sediment for Riverine Infrastructure II	Kyle Shour
Title of Paper/Presentation	Improving Sediment Management at the Isleta Diversion Dam	

Moderators	Authors	Organization	Country
Jerry Bernard	Kyle Shour	Tetra Tech	United States
Gerard Salter	David Pizzi	Alden Research Laboratory	United States
	Drew Baird	U.S. Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
5E1 (200)	Feedbacks in Hydraulics, Morphology, and Erosion	Christopher Ryan Denney
Title of Paper/Presentation	Analysis on Alignment of Comite Diversion Channel and Associated Drop Structure	

Moderators	Authors	Organization	Country
Chi Bui	Christopher Ryan Denney	USACE	United States
Eddy Langendoen			

Session ID (paper)	Session Name	Presenter
5E2 (7)	Feedbacks in Hydraulics, Morphology, and Erosion	Chi Bui
Title of Paper/Presentation	Integration of Soil Bioengineering into an Erosion and Flood Protection Design on the Urbanized Sacramento River in the City of Sacramento	

Moderators	Authors	Organization	Country
Chi Bui	Chi Bui	U.S Army Corps of Engineers	United States
Eddy Langendoen	Johnsen Liang	U.S. Army Corps of Engineers	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
5E3 (124)	Feedbacks in Hydraulics, Morphology, and Erosion	Joseph Collum
Title of Paper/Presentation	Implementing Diverse Bank Stabilization Measures to Contain and Capture Lead-Contaminated Sediment	

Moderators	Authors	Organization	Country
Chi Bui Eddy Langendoen	Joseph Collum	USACE MVS	United States

Session ID (paper)	Session Name	Presenter
5E4 (61)	Feedbacks in Hydraulics, Morphology, and Erosion	Adam Howard
Title of Paper/Presentation	Coupling Risk-Informed Design and Stochastic Erosion Modeling to Reduce Habitat Impacts	

Moderators	Authors	Organization	Country
Chi Bui	Michael Snyder	USACE	United States
Eddy Langendoen	Adam Howard	USACE	United States
	Jeremiah Jazdzewski	USACE	United States
	Jonathan AuBuchon	USACE	United States

Session ID (paper)	Session Name	Presenter
5F1 (145)	Sediment Measurements at the Arroyo de los Pinos Research Station	David Varyu
Title of Paper/Presentation	Updates and Improvements to the Arroyo de los Pinos Research Station	

Moderators	Authors	Organization	Country
David Varyu	David Varyu	Bureau of Reclamation	United States
	Kyle Stark	San Francisco Estuary Institute	United States
Brian Carpenter	Daniel Cadol	New Mexico Institute of Mining and Technology	United States
	Jonathan Laronne	Ben Gurion University of the Negev	Israel
	Susan Bilek	New Mexico Institute of Mining and Technology	United States
	Madeline Richards	Clearwater Hydrology	United States
	Sharllyn Pimentel	Dudek	United States
	Sandra Glasgo	New Mexico Institute of Mining and Technology	United States
	Mitchell McLaughlin	New Mexico Institute of Mining and Technology	United States
	Loc Luong	New Mexico Institute of Mining and Technology	United States
	Rebecca Moskal	New Mexico Institute of Mining and Technology	United States

Session ID (paper)	Session Name	Presenter
5F2 (162)	Sediment Measurements at the Arroyo de los Pinos Research Station	David Varyu
Title of Paper/Presentation	Seven years of sediment measurements at the Arroyo de los Pinos monitoring station	

Moderators	Authors	Organization	Country
David Varyu	Kyle Stark	San Francisco Estuary Institute	United States
Brian Carpenter	Daniel Cadol	New Mexico Institute of Mining and Technology	United States
	Jonathan Laronne	Ben Gurion University of the Negev	Israel
	David Varyu	U.S. Bureau of Reclamation	United States
	Susan Bilek	New Mexico Institute of Mining and Technology	United States
	Madeline Richards	ERM, INC	United States
	Sharllyn Pimentel	Dudek	United States
	Sandra Glasgo	WSP, inc.	United States
	Mitchell McLaughlin	New Mexico Institute of Mining and Technology	United States
	Loc Luong	New Mexico Institute of Mining and Technology	United States
	Rebecca Moskal	New Mexico Institute of Mining and Technology	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
5F3 (123)	Sediment Measurements at the Arroyo de los Pinos Research Station	Susan Bilek
Title of Paper/Presentation	Overview of Bedload Estimates Based on Seismic Monitoring at the ephemeral Arroyo de los Pinos tributary of the Rio Grande, New Mexico	

Moderators	Authors	Organization	Country
David Varyu	Susan Bilek	New Mexico Tech	United States
Brian Carpenter	John Mitchell McLaughlin	New Mexico Tech	United States
	Daniel Cadol	New Mexico Tech	United States
	Jonathan Laronne	Ben Gurion University	Israel
	Kyle Stark	New Mexico Tech	United States
	Loc Luong	New Mexico Tech	United States
	David Varyu	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
5F4 (148)	Sediment Measurements at the Arroyo de los Pinos Research Station	John Mitchell McLaughlin
Title of Paper/Presentation	Field Methods and Instrument Types for Using Seismic Monitoring of Bedload in Sand-Rich Gravel Bed Ephemeral Channels	

Moderators	Authors	Organization	Country
David Varyu	John Mitchell McLaughlin	New Mexico Institute of Mining and Technology	United States
Brian Carpenter	Susan Bilek	New Mexico Institute of Mining and Technology	United States
	Daniel Cadol	New Mexico Institute of Mining and Technology	United States
	Jonathan Laronne	Ben-Gurion University of the Negev	Israel
	David Varyu	United States Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
5G1 (156)	Advancements in Bank Erosion Assessment	Eddy Langendoen
Title of Paper/Presentation	Improving the reliability of soil erosion estimates	

Moderators	Authors	Organization	Country
Xiaofeng Liu	Eddy Langendoen	USDA ARS	United States
Ashley Dudill	Michael Ursic	USDA ARS	United States
	Jean-Louis Briaud	Texas A&M University	United States
	Jonathan AuBuchon	US Army Corps of Engineers	United States
	Todd Rivas	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
5G2 (146)	Advancements in Bank Erosion Assessment	Michael Ursic
Title of Paper/Presentation	Advancements in predicting bank erosion processes with the Bank Stability and Toe Erosion Model (BSTEM)	

Moderators	Authors	Organization	Country
Xiaofeng Liu	Michael Ursic	USDA ARS National Sedimentation Laboratory	United States
Ashley Dudill	Eddy Langendoen	USDA ARS National Sedimentation Laboratory	United States

Session ID (paper)	Session Name	Presenter
5G3 (193)	Advancements in Bank Erosion Assessment	Jonathan AuBuchon
Title of Paper/Presentation	Erosion Countermeasure Design in Complex Flow Field: A Case Study on the American River	

Moderators	Authors	Organization	Country
Xiaofeng Liu	Todd Rivas	United States Army Corps of Engineers	United States
	Tyler Keys	United States Army Corps of Engineers	United States
Ashley Dudill	Johnsen Liang	United States Army Corps of Engineers	United States
	Yung Carmona	United States Army Corps of Engineers	United States
	Jonathan AuBuchon	United States Army Corps of Engineers	United States
	Eddy Langendoen	USDA ARS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
5G4 (92)	Advancements in Bank Erosion Assessment	Justin Condon
Title of Paper/Presentation	Assessing Use of the Excess Shear Stress Equation to Estimate Cohesive Bank Erosion Rates Under Different Stream Channel Characteristics	

Moderators	Authors	Organization	Country
Xiaofeng Liu	Justin Condon	University of Tennessee Knoxville	United States
Ashley Dudill	John Schwartz	University of Tennessee Knoxville	United States

Session ID (paper)	Session Name	Presenter
6A1 (178)	Frequency and Design Storm Analysis I	Jory Hecht
Title of Paper/Presentation	A Conceptual Workflow for Projecting Future Riverine and Coastal Flood Hazards to Support the Federal Flood Risk Management Standard	

Moderators	Authors	Organization	Country
Jory Hecht	Jory Hecht	U.S. Geological Survey	United States
Jennifer Christensen	Doug Marcy	National Oceanic and Atmospheric Administration	United States
	Jacquelyn Overbeck	National Oceanic and Atmospheric Administration	United States
	Lauren Schmied	Federal Emergency Management Agency	United States
	Faith Fitzpatrick	U.S. Geological Survey	United States
	Nicole Kinsman	National Oceanic and Atmospheric Administration	United States
	Maria Honeycutt	Office of Science and Technology Policy - The White House	United States
	Robert Mason, Jr.	U.S. Geological Survey	United States
	Joseph Krolak	U.S. Department of Transportation - Federal Highway Administration	United States
	William Veatch	U.S. Army Corps of Engineers	United States
	Julia Prokopec	U.S. Geological Survey	United States
	Harvey Pollard	U.S. Geological Survey	United States
	Allen Gellis	U.S. Geological Survey	United States
	Daniel Sharar-Salgado	U.S. Department of Transportation - Federal Highway Administration	United States
	Edward Clark	National Oceanic and Atmospheric Administration	United States
	Christopher Weaver	U.S. Environmental Protection Agency	United States

Session ID (paper)	Session Name	Presenter
6A2 (255)	Frequency and Design Storm Analysis	Francesco Dell'Aira
Title of Paper/Presentation	A paradigm-shift from regional to global flood-frequency analysis in large-sample hydrology for prediction in ungauged basins	

Moderators	Authors	Organization	Country
Jory Hecht	Francesco Dell'Aira	University of Memphis	United States
Jennifer Christensen	Nischal Kafle	University of Memphis	United States
	Antonino Cancelliere	University of Catania	Italy
	Claudio I. Meier	University of Memphis	United States

Session ID (paper)	Session Name	Presenter
6A3 (42)	Frequency and Design Storm Analysis	Avital Breverman
Title of Paper/Presentation	Addressing Mixed Populations in Flood Frequency Analyses: A Case Study in Eastern Pennsylvania	

Moderators	Authors	Organization	Country
Jory Hecht	Avital Breverman	U.S. Army Corps of Engineers Hydrologic Engineering Center	United States
Jennifer Christensen	Mike Bartles	U.S. Army Corps of Engineers Hydrologic Engineering Center	United States
	Gregory Karlovits	U.S. Army Corps of Engineers Hydrologic Engineering Center	United States
	Mazdak Arabi	Colorado State University	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
6A4 (39)	Frequency and Design Storm Analysis	Ryan Larsen
Title of Paper/Presentation	Missouri River Flow Frequency Study: HEC-WAT Monte Carlo Analyses	

Moderators	Authors	Organization	Country
Jory Hecht	Ryan Larsen	US Army Corps of Engineers	United States
Jennifer Christensen	Beth Faber	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
6B1 (166)	Modeling Advances III	D. Phillip Guertin
Title of Paper/Presentation	The K2-RHEM-AGWA Suite of Modeling Tools–2023	

Moderators	Authors	Organization	Country
Ceyda Polatel	David Goodrich	USDA-ARS, Tucson, AZ	United States
David Lesmes	Patrick Broxton	University of Arizona	United States
	D. Phillip Guertin	University of Arizona	United States
	I. Shea Burns	University of Arizona	United States
	Carl Unkrich	USDA-ARS, Tucson, AZ	United States
	Yoganand Korgaonkar	University of Arizona	United States
	Phil Heilman	USDA-ARS, Tucson, AZ	United States
	Mariano Hernandez	University of Arizona	United States
	Haiyan Wei	University of Arizona	United States
	C. Jason Williams	USDA-ARS, Tucson, AZ	United States

Session ID (paper)	Session Name	Presenter
6B2 (40)	Modeling Advances III	Matthew Fleming
Title of Paper/Presentation	New Modeling Capability in HEC-HMS	

Moderators	Authors	Organization	Country
Ceyda Polatel	Matthew Fleming	USACE Hydrologic Engineering Center	United States
David Lesmes			

Session ID (paper)	Session Name	Presenter
6B3 (290)	Modeling Advances III	Dagmar Llewellyn
Title of Paper/Presentation	Seasonal forecasting of monsoon precipitation characteristics using weather types and generalized linear modeling	

Moderators	Authors	Organization	Country
Ceyda Polatel	Erin Towler	National Center for Atmospheric Research	United States
David Lesmes	Dagmar Llewellyn	Bureau of Reclamation	United States
	Andreas Prein	National Center for Atmospheric Research	United States
	Lucas Barrett	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
6B4 (150)	Modeling Advances III	Daniel Cadol
Title of Paper/Presentation	Controls on the runoff response of the ephemeral Arroyo de los Pinos watershed to high-intensity rain	

Moderators	Authors	Organization	Country
Ceyda Polatel	Daniel Cadol	New Mexico Tech	United States
David Lesmes	Sandra Glasgo	New Mexico Tech	United States
	Madeline Richards	Clearwater Hydrology	United States
	Kyle Stark	San Francisco Estuary Institute	United States
	Loc Luong	New Mexico Tech	United States
	Susan Bilek	New Mexico Tech	United States
	David Varyu	US Bureau of Reclamation	United States
	Jonathan Laronne	Ben Gurion University	Israel

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
6C1 (67)	Scour and Hydraulics Modeling at Bridge-Stream Crossings	Peter Kickham
Title of Paper/Presentation	A Comparison of Bridge Modeling and Scour Prediction Using 1-D and 2-D Hydraulic Models	

Moderators	Authors	Organization	Country
Scott Hogan	Peter Kickham	Saint Louis University	United States
Drew Baird	Amanda Cox	Saint Louis University	United States
	Ronaldo Luna	Saint Louis University	United States

Session ID (paper)	Session Name	Presenter
6C2 (102)	Scour and Hydraulics Modeling at Bridge-Stream Crossings	Steven Griffin
Title of Paper/Presentation	Morphodynamic Modeling of Gravel Bar Formation at a Bridge Replacement	

Moderators	Authors	Organization	Country
Scott Hogan	Steven Griffin	Colorado Department of Transportation	United States
Drew Baird			

Session ID (paper)	Session Name	Presenter
6C3 (37)	Scour and Hydraulics Modeling at Bridge-Stream Crossings	Kyle Hix
Title of Paper/Presentation	Two-Dimensional Hydraulic and Scour Analysis of Cohesive Soils at Select Bridges in Illinois	

Moderators	Authors	Organization	Country
Scott Hogan	Kyle Hix	United States Geological Survey	United States
Drew Baird	Mostafa Ebrahimi	Southern Illinois University Edwardsville	United States

Session ID (paper)	Session Name	Presenter
6C4 (60)	Scour and Hydraulics Modeling at Bridge-Stream Crossings	Scott Hogan
Title of Paper/Presentation	Advancements in Bridge Scour Evaluation with 2D Hydraulic and Sediment Transport Modeling	

Moderators	Authors	Organization	Country
Scott Hogan	Scott Hogan	Federal Highway Administration	United States
Drew Baird	Yong Lai	US Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
6D1 (165)	Post-Fire Flood Evaluation and Management	Edward Schenk
Title of Paper/Presentation	Managing Post-Wildfire Flood Dynamics to Determine Urbaan Stormwater Infrastructure Needs: Flagstaff Arizona Case Study	

Moderators	Authors	Organization	Country
Guo Yu		Flagstaff Water Services	United States
Ian Floyd	Joe Loverich	JE Fuller Hydrology and Geomorphology, Inc.	United States
	Allen Haden	Natural Channel Designs, Inc.	United States

Session ID (paper)	Session Name	Presenter
6D2 (247)	Post-Fire Flood Evaluation and Management	Jeremy Giovando
Title of Paper/Presentation	Monte Carlo Simulation of Post-Wildfire Flood Hazard Probabilities	

Moderators	Authors	Organization	Country
Guo Yu	Jeremy Giovando	USACE ERDC CRREL	United States
Ian Floyd	Kathryn Seefus	USACE Omaha District	United States
	Evan Heisman	USACE IWR HEC	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
6D3 (63)	Post-Fire Flood Evaluation and Management	Guo Yu
Title of Paper/Presentation	Wildfire Impacts on Annual Flood Peaks Across the Western United States	

Moderators	Authors	Organization	Country
Guo Yu	Guo Yu	Desert Research Institute	United States
Ian Floyd	Julianne Miller	Desert Research Institute	United States
	Sachiko Sueki	Desert Research Institute	United States

Session ID (paper)	Session Name	Presenter
6D4 (81)	Post-Fire Flood Evaluation and Management	Jonathan AuBuchon
Title of Paper/Presentation	Racing the Rain: A Post-Wildfire Case Study in Northern, NM	

Moderators	Authors	Organization	Country
Guo Yu	Jonathan AuBuchon	USACE	United States
Ian Floyd	Kellie Jemes	USACE	United States
	Jackie Oehler	USACE	United States
	Jose Paredez	USACE	United States
	Jay Pak	USACE	United States
	Moosob Eom	USACE	United States

Session ID (paper)	Session Name	Presenter
6E1 (76)	Evaluating Restoration Programs	Mike Knutson
Title of Paper/Presentation	Scale Matters - Lessons Learned from Large-Scale Floodplain Restoration in the Upper Grande Ronde River, Oregon	

Moderators	Authors	Organization	Country
Nathan Holste	Mike Knutson	US Bureau of Reclamation	United States
Garrett Menichino	Justin Nielsen	US Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
6E2 (100)	Evaluating Restoration Programs	Jason Siemion
Title of Paper/Presentation	Effects of a large flood on sediment and turbidity reduction projects in the Esopus Creek watershed, NY	

Moderators	Authors	Organization	Country
Nathan Holste	Jason Siemion	US Geological Survey	United States
Garrett Menichino	Wae Davis	New York City Department of Environmental Protection	United States
	Donald Bonville	USGS	United States

Session ID (paper)	Session Name	Presenter
6E3 (80)	Evaluating Restoration Programs	Aubrey Harris
Title of Paper/Presentation	Retrospective: Transitioning River Geomorphology and its Impact on Habitat Management	

Moderators	Authors	Organization	Country
Nathan Holste	Aubrey Harris	USACE	United States
Garrett Menichino	Jonathan AuBuchon	USACE	United States
	Mick Porter	USACE	United States
	Kyle McKay	USACE	United States

Session ID (paper)	Session Name	Presenter
6E4 (14)	Evaluating Restoration Programs	Nathan Holste
Title of Paper/Presentation	Quantifying Sediment Deposition within Constructed River Restoration Sites using Repeat Aerial LiDAR	

Moderators	Authors	Organization	Country
Nathan Holste	Nathan Holste	Bureau of Reclamation	United States
Garrett Menichino	D. Nathan Bradley	Bureau of Reclamation	United States
	Colin Byrne	Bureau of Reclamation	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
6F1 (115)	Optical and Indirect Sediment Measurements	Jonathan A. Czuba
Title of Paper/Presentation	Assessment and Guidance for using Laser In-situ Scattering and Transmissometry – Stream-Lined 2 (LISST-SL2)	

Moderators	Authors	Organization	Country
Jonathan A. Czuba Susan Bilek	Muneer Ahammad	Virginia Tech	United States
	Jonathan A. Czuba	Virginia Tech	United States
	Christopher A. Curran	US Geological Survey	United States

Session ID (paper)	Session Name	Presenter
6F2 (167)	Optical and Indirect Sediment Measurements	Rebecca Diehl
Title of Paper/Presentation	Evaluating Opportunities for Broad-Scale Remote Sensing of TSS on Small Rivers	

Moderators	Authors	Organization	Country
Jonathan A. Czuba Susan Bilek	Rebecca Diehl	University of Vermont	United States
	Kristen Underwood	University of Vermont	United States
	Robert Watt	University of Vermont	United States
	Scott Hamshaw	University of Vermont	United States
	Nima Pahlevan	Science Systems and Applications, Inc. and NASA Goddard Space Flight Center	United States

Session ID (paper)	Session Name	Presenter
6F4 (144)	Optical and Indirect Sediment Measurements	Loc Luong
Title of Paper/Presentation	Quantifying bedload transport in ephemeral channels using seismic methods	

Moderators	Authors	Organization	Country
Jonathan A. Czuba Susan Bilek	Loc Luong	New Mexico Tech	United States
	Daniel Cadol	New Mexico Tech	United States
	Susan Bilek	New Mexico Tech	United States
	J. Mitchell McLaughlin	New Mexico Tech	United States
	Jens M. Turowski	GFZ Potsdam	Germany
	Jonathan B. Laronne	Ben Gurion University of the Negev	Israel
	David Varyu	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
6G1 (65)	Levee Erosion and the Contributions of Waves to Bank Erosion	Dana Moree
Title of Paper/Presentation	MMC Levee Breach Modeling- Erosion Rate Methodology	

Moderators	Authors	Organization	Country
Delaney Robinson Michael Ursic	Dana Moree	USACE	United States

Session ID (paper)	Session Name	Presenter
6G2 (210)	Levee Erosion and the Contributions of Waves to Bank Erosion	Yavuz Ozeren
Title of Paper/Presentation	Erosion Prediction on Irrigation Reservoir Embankments	

Moderators	Authors	Organization	Country
Delaney Robinson Michael Ursic	Yavuz Ozeren	University of Mississippi, National Center for Computational Hydroscience and Engineering	United States
	William Rossell	University of Mississippi, National Center for Computational Hydroscience and Engineering	United States
	Daniel Wren	USDA-ARS National Sedimentation Laboratory	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
6G3 (204)	Levee Erosion and the Contributions of Waves to Bank Erosion	Yavuz Ozeren
Title of Paper/Presentation	Bank Erosion by Wind-Generated Waves: Development of the Wind-Wave Sub-Model in BSTEM-Dynamic	

Moderators	Authors	Organization	Country
Delaney Robinson Michael Ursic	Yavuz Ozeren	University of Mississippi, National Center for Computational Hydroscience and Engineering	United States
	Andrew Simon	Cardno, now Stantec	United States
	Jennifer Hammond	Cardno, now Stantec	United States

Session ID (paper)	Session Name	Presenter
6G4 (208)	Levee Erosion and the Contributions of Waves to Bank Erosion	Yavuz Ozeren
Title of Paper/Presentation	Bank Erosion by Wind-Generated Waves II: Application of a Wind-Wave Sub-Model in BSTEM-Dynamic	

Moderators	Authors	Organization	Country
Delaney Robinson Michael Ursic	Andrew Simon	Stantec	United States
	Yavuz Ozeren	University of Mississippi, National Center for Computational Hydroscience Engineering	United States
	Jennifer Hammond	Stantec	United States

Session ID (paper)	Session Name	Presenter
7A1 (141)	Frequency and Design Storm Analysis III	Alexander Michalek
Title of Paper/Presentation	Iowa Flood Frequency and Projections: Analysis and Web-Tool	

Moderators	Authors	Organization	Country
David Lesmes Jim Barton	Alexander Michalek	IIHR-Hydroscience & Engineering, The University of Iowa	United States
	Gabriele Villarini	IIHR-Hydroscience & Engineering, The University of Iowa	United States
	Felipe Quintero	IIHR-Hydroscience & Engineering, The University of Iowa	United States
	Witold Krajewski	IIHR-Hydroscience & Engineering, The University of Iowa	United States

Session ID (paper)	Session Name	Presenter
7A2 (296)	Frequency and Design Storm Analysis III	Kenneth Lawson
Title of Paper/Presentation	Characterizing Duation and Frequency of Flood Events Across Geomorphic Settings	

Moderators	Authors	Organization	Country
David Lesmes Jim Barton	Kenneth Lawson	University of Vermont	United States
	Kristen Underwood	University of Vermont	United States
	Rebecca Diehl	University of Vermont	United States
	Donna Rizzo	University of Vermont	United States

Session ID (paper)	Session Name	Presenter
7A3 (121)	Frequency and Design Storm Analysis III	John McEnery
Title of Paper/Presentation	Flow Frequency Study of the Upper Mississippi River	

Moderators	Authors	Organization	Country
David Lesmes Jim Barton	Daniel Smith	USACE Rock Island District	United States
	John McEnery	USACE Saint Louis District	United States
	Chanel Mueller	USACE Saint Paul District	United States
	Leigh Youngblood	USACE Saint Paul District	United States
	John Boeckmann	USACE St. Louis District	United States

Session ID (paper)	Session Name	Presenter
7A4 (9)	Frequency and Design Storm Analysis III	Jennifer Christensen
Title of Paper/Presentation	Flow Frequency Mixed-Population Analysis: Examples, Tools, and Challenges	

Moderators	Authors	Organization	Country
David Lesmes Jim Barton	Jennifer Christensen	US Army Corps of Engineers	United States
	George Hayes III	US Army Corps of Engineers	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
7B1 (10)	Modeling Advances IV	Marcy Frick
Title of Paper/Presentation	H&H Modeling for Wetland Restoration in Florida	

Moderators	Authors	Organization	Country
Marcy Frick Matthew Fleming	Marcy Frick	Tetra Tech	United States
	Madhu Akasapu-Smith	Tetra Tech	United States
	Roderick Cashe	Tetra Tech	United States

Session ID (paper)	Session Name	Presenter
7B2 (236)	Modeling Advances IV	Matt Dircksen
Title of Paper/Presentation	Hydraulic Modeling of the Mississippi and Atchafalaya Rivers below Old River to Develop Flood Loading Curves	

Moderators	Authors	Organization	Country
Marcy Frick Matthew Fleming	Matt Dircksen	USACE New Orleans District	United States
	Cameron Broussard	USACE New Orleans District	United States
	Max Agnew	USACE Galveston District	United States

Session ID (paper)	Session Name	Presenter
7B3 (74)	Modeling Advances IV	Rachel Schulz
Title of Paper/Presentation	What Gridded Snow Water Equivalent Dataset Should I Use?	

Moderators	Authors	Organization	Country
Marcy Frick Matthew Fleming	Rachel Schulz	U.S. Army Corps of Engineers Omaha District	United States

Session ID (paper)	Session Name	Presenter
7B4 (168)	Modeling Advances IV	Travis Dahl
Title of Paper/Presentation	Rain-on-Snow Simulation Enhancements within HEC-HMS	

Moderators	Authors	Organization	Country
Marcy Frick Matthew Fleming	Travis Dahl	USACE ERDC-CHL	United States
	Jeremy Giovando	USACE ERDC-CRREL	United States
	Michael Bartles	USACE IWR-HEC	United States
	Daniel Hamill	USACE Sacramento District	United States

Session ID (paper)	Session Name	Presenter
7C1 (261)	Numerical Modeling Considerations	D. Nathan Bradley
Title of Paper/Presentation	Analyzing the Effects of Mesh Resolution on Hydraulic Model Results and Habitat Estimates	

Moderators	Authors	Organization	Country
Dragoslav Stefanovic Yaoxin Zhang	D. Nathan Bradley	U.S. Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
7C2 (85)	Numerical Modeling Considerations	Xiaofeng Liu
Title of Paper/Presentation	What Manning's *n*? A need for clear definitions in computational modeling	

Moderators	Authors	Organization	Country
Dragoslav Stefanovic Yaoxin Zhang	Ali Mahdavi	Department of Civil and Environmental Engineering, Penn State University, State College, PA	United States
	Lyle Zevenbergen	Lyle W. Zevenbergen, LLC, Fort Collins, CO	United States
	Casey Kramer	Natural Waters, LLC, Olympia, WA	United States
	Xiaofeng Liu	Department of Civil and Environmental Engineering, Penn State University, State College, PA	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
7C3 (52)	Numerical Modeling Considerations	Zachary Morris
Title of Paper/Presentation	The Sediment Rating Curve Analysis Tool: Downloading and Analyzing Sediment Rating Curves in HEC-RAS	

Moderators	Authors	Organization	Country
Dragoslav Stefanovic	Stanford Gibson	USACE-HEC	United States
Yaoxin Zhang	Zachary Morris	USACE-HEC	United States
	James Lewis	USACE-ERDC	United States
	David May	USACE	United States

Session ID (paper)	Session Name	Presenter
7C4 (282)	Numerical Modeling Considerations	Sarah Harbert
Title of Paper/Presentation	Relative importance of climate and floodplain management on the morphodynamic evolution of a gravel-bed river: numerical simulations using MAST-1D	

Moderators	Authors	Organization	Country
Dragoslav Stefanovic	Sarah Harbert	Northwest Hydraulic Consultants	United States
Yaoxin Zhang	J. Wesley Lauer	Seattle University	United States
	Andrew Nelson	Northwest Hydraulic Consultants	United States

Session ID (paper)	Session Name	Presenter
7D1 (197)	Hydraulic Modeling of Debris Flows, Sediment, and Floods	Kellie Jemes
Title of Paper/Presentation	Modeling Non-Newtonian Debris Flows in HEC-RAS: Two Diverse Applications	

Moderators	Authors	Organization	Country
Jang Pak	Kellie Jemes	USACE, Sacramento District, Hydraulic Analysis Section	United States
Jonathan AuBuchon	Stanford Gibson	USACE, HEC	United States
	Jay Pak	USACE, HEC	United States

Session ID (paper)	Session Name	Presenter
7D2 (153)	Hydraulic Modeling of Debris Flows, Sediment, and Floods	Edward Schenk
Title of Paper/Presentation	Post-wildfire sediment transport modeling versus field observations: Northern Arizona case studies	

Moderators	Authors	Organization	Country
Jang Pak	Edward Schenk	Flagstaff Water Services	United States
Jonathan AuBuchon	Allen Haden	Natural Channel Design, Inc.	United States
	Joe Loverich	JE Fuller Hydrology and Geomorphology Inc.	United States
	Alex Wood	Natural Channel Design, Inc.	United States

Session ID (paper)	Session Name	Presenter
7D3 (30)	Hydraulic Modeling of Debris Flows, Sediment, and Floods	Jang Pak
Title of Paper/Presentation	Post-Wildfire Hydrology and Debris Flow Analysis Using Hydrologic Modeling System (HEC-HMS)	

Moderators	Authors	Organization	Country
Jang Pak Jonathan AuBuchon	Jang Pak	U.S. Army Corps of Engineers, Institute for Water Resources, Hydrologic Engineering Center	United States
	Nawa Pradhan	U.S. Army Corps of Engineers, ERDC Coastal and Hydraulics Laboratory	United States
	Ian Floyd	U.S. Army Corps of Engineers, ERDC Coastal and Hydraulics Laboratory	United States
	Matt Fleming	U.S. Army Corps of Engineers, Institute for Water Resources, Hydrologic Engineering Center	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
7D4 (219)	Hydraulic Modeling of Debris Flows, Sediment, and Floods	Stanford Gibson
Title of Paper/Presentation	Mud and Debris Modeling with HEC-RAS	

Moderators	Authors	Organization	Country
Jang Pak	Stanford Gibson	Hydrologic Engineering Center	United States
Jonathan AuBuchon	Alejandro Sanchez	Hydrologic Engineering Center	United States
	Ian Floyd	USACE ERDC-Coastal and Hydraulics Laboratory	United States

Session ID (paper)	Session Name	Presenter
7E1 (182)	Physical Processes Informing Restoration and Habitat	Carolyn Gombert
Title of Paper/Presentation	Characterization of thermal regimes of side channels, alcoves, and ponds on the Willamette River, OR	

Moderators	Authors	Organization	Country
Joanna Curran	Carolyn Gombert	Bureau of Reclamation	United States
Colin Byrne	Stephen Lancaster	Oregon State University	United States
	Gordon Grant	U.S. Forest Service Pacific Northwest Research Station	United States
	Rebecca Flitcroft	U.S. Forest Service Pacific Northwest Research Station	United States

Session ID (paper)	Session Name	Presenter
7E2 (287)	Physical Processes Informing Restoration and Habitat	Garrett Menichino
Title of Paper/Presentation	Assessing Hyporheic Exchange: A Review of Methods with Emphasis on Flows and Sediment	

Moderators	Authors	Organization	Country
Joanna Curran	Garrett Menichino	USACE	United States
Colin Byrne			

Session ID (paper)	Session Name	Presenter
7E3 (288)	Physical Processes Informing Restoration and Habitat	Saman Ebrahimi
Title of Paper/Presentation	Hyporheic Exchange Flow (HEF) Under a Unit, Medial Gravel Bar: a High-resolution Field Study	

Moderators	Authors	Organization	Country
Joanna Curran	Saman Ebrahimi	University of Memphis	United States
Colin Byrne	Eatedal Alqusaireen	University of Tennessee	United States
	Claudio Meier	University of Memphis	United States

Session ID (paper)	Session Name	Presenter
7E4 (184)	Physical Processes Informing Restoration and Habitat	Joanna Curran
Title of Paper/Presentation	How Engineered Log Jams (ELJ) of different designs affect channel morphology and hydraulics in a high energy gravel and sand channel	

Moderators	Authors	Organization	Country
Joanna Curran	Joanna Curran	USACE	United States
Colin Byrne			

Session ID (paper)	Session Name	Presenter
7F1 (17)	Sediment Transport Estimation Methods	Joel Groten
Title of Paper/Presentation	Comparing Empirical Sediment Transport Modeling Approaches in Michigan Rivers	

Moderators	Authors	Organization	Country
Jamil Ibrahim	Joel Groten	U.S. Geological Survey	United States
Rebecca Diehl	Sara Levin	U.S. Geological Survey	United States
	Erin Coenen	U.S. Geological Survey	United States
	J. William Lund	U.S. Geological Survey	United States
	Bethany Matousek	Michigan Department of Environment, Great Lakes, and Energy	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
7F2 (18)	Sediment Transport Estimation Methods	J. William Lund
Title of Paper/Presentation	How Machine Learning Can Improve Predictions and Provide Insight into Fluvial Sediment Transport in Minnesota	

Moderators	Authors	Organization	Country
Jamil Ibrahim	J. William Lund	U.S. Geological Survey	United States
Rebecca Diehl	Joel Groten	U.S. Geological Survey	United States
	Diana Karwan	University of Minnesota	United States
	Chad Babcock	University of Minnesota	United States

Session ID (paper)	Session Name	Presenter
7F3 (169)	Sediment Transport Estimation Methods	
Title of Paper/Presentation	Sand and Gravel-Trapping Efficiencies Derived for Four Types of Pressure-Difference Bedload Samplers	

Moderators	Authors	Organization	Country
Jamil Ibrahim	John Gray	USGS Scientist Emeritus	United States
Rebecca Diehl	Joel Groten	U.S. Geological Survey	United States
	Jonathan Czuba	Virginia Tech	United States
	Gregory Schwarz	U.S. Geological Survey	United States
	Kyle Strom	Virginia Tech	United States
	Panayiotis Diplas	Lehigh University	United States

Session ID (paper)	Session Name	Presenter
7F4 (34)	Sediment Transport Estimation Methods	Jessica Wiegand
Title of Paper/Presentation	Sedimentation Resurvey Methods: Comparison of Prismoidal Method and GIS Based Method	

Moderators	Authors	Organization	Country
Jamil Ibrahim	Jessica Wiegand	USACE	United States
Rebecca Diehl	Joseph Collum	USACE	United States
	John Vest	USACE	United States
	David Gordon	USACE	United States

Session ID (paper)	Session Name	Presenter
7G1 (68)	Observations of Sediment and Nutrient Dynamics	Daniel E. Kroes
Title of Paper/Presentation	Sediment and nutrient deposition over a reconnected floodplain during large-scale river diversions, the Bonnet Carré Spillway in 2011, 2016, and 2019.	

Moderators	Authors	Organization	Country
Lindsey Witthaus	Daniel E. Kroes	U.S. Geological Survey	United States
Xiaobo Chao	Gregory B. Noe	U.S. Geological Survey	United States
	David Ramirez	U.S. Army Corps of Engineers	United States
	Brian Vosburg	Grey Boat Group	United States

Session ID (paper)	Session Name	Presenter
7G2 (112)	Observations of Sediment and Nutrient Dynamics	Sayjro Nouwakpo
Title of Paper/Presentation	Sediment and phosphorus dynamics in a highly managed irrigated watershed of southern Idaho	

Moderators	Authors	Organization	Country
Lindsey Witthaus	Sayjro Nouwakpo	USDA-ARS	United States
Xiaobo Chao	David Bjorneberg	USDA-ARS	United States
	Christopher Rogers	USDA-ARS	United States
	Isis Scott	USDA-ARS	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
7G3 (176)	Observations of Sediment and Nutrient Dynamics	Lindsey Witthaus
Title of Paper/Presentation	Soil and sediment nutrient dynamics under variable climate conditions in a Mississippi agricultural watershed	

Moderators	Authors	Organization	Country
Lindsey Witthaus	Lindsey Witthaus	USDA ARS	United States
Xiaobo Chao	EthanPawlowski	USDA ARS	United States
	Jason Taylor	USDA-ARS	United States
	Martin Locke	USDA-ARS	United States

Session ID (paper)	Session Name	Presenter
7G4 (44)	Observations of Sediment and Nutrient Dynamics	Tanja N Williamson
Title of Paper/Presentation	Building a library of source samples for sediment fingerprinting – potential and proof of concept	

Moderators	Authors	Organization	Country
Lindsey Witthaus	Tanja N Williamson	USGS, Ohio-Kentucky-Indiana Water Science Center	United States
Xiaobo Chao	Faith A Fitzpatrick	USGS, Upper Midwest Water Science Center	United States
	Rebecca M Kreiling	USGS, Upper Midwest Environmental Science Center	United States

Session ID (paper)	Session Name	Presenter
8A1 (254)	Frequency and Design Storm Analysis III	Amanda Stone
Title of Paper/Presentation	Flood Frequency Analysis in a Data Sparse Mixed-Population Watershed	

Moderators	Authors	Organization	Country
Chandra Pathak	Amanda Stone	Bureau of Reclamation	United States
Ann Banitt	Tim Clarkin	Bureau of Reclamation	United States
	Doug Woolridge	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
8A2 (272)	Lauren Coe	Lauren Coe
Title of Paper/Presentation	Lauren Coe	

Moderators	Authors	Organization	Country
Chandra Pathak	Lauren Coe	U.S. Army Corps of Engineers	United States
Ann Banitt	Reuben Sasaki	U.S. Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
8A3 (230)	Frequency and Design Storm Analysis III	
Title of Paper/Presentation	Joint effects of rain-gauge density and data resolution on estimates of extreme precipitation over short durations	

Moderators	Authors	Organization	Country
Chandra Pathak			
Ann Banitt			

Session ID (paper)	Session Name	Presenter
8A4 (55)	Frequency and Design Storm Analysis III	Phoebe White
Title of Paper/Presentation	Exploring the Applicability of Radar-Based Quantitative Precipitation Estimates for Emergency Assessment of Post-Wildfire Debris Flow Hazards in Colorado	

Moderators	Authors	Organization	Country
Chandra Pathak	Phoebe White	Colorado State University	United States
Ann Banitt	Francis Rengers	U.S. Geological Survey	United States
	Katherine Barnhart	U.S. Geological Survey	United States
	Peter Nelson	Colorado State University	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
8B1 (222)	Modeling Advances V	Wasantha Lal
Title of Paper/Presentation	Testing the RSM model using the TVDLF method for simulating hydrology in Mendocina and upper Kissimmee watersheds.	

Moderators	Authors	Organization	Country
William Otero Dagmar Llewellyn	Wasantha Lal	US Army Corps of Engineers	United States
	Jaime Graulau-Santiago	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
8B2 (151)	Modeling Advances V	Amanda Nelson
Title of Paper/Presentation	Qualitative and Quantitative Assessment of Farm-scale Runoff as response to Grazing Operation	

Moderators	Authors	Organization	Country
William Otero Dagmar Llewellyn	Amanda Nelson	NCAAR/USDA-ARS	United States
	Mahesh Maskey	ORISE/USDA-ARS	United States
	Brian Northup	USDA-ARS	United States
	Javier Leyton	Texas A&M University	United States
	Daniel Moriasi	USDA-ARS	United States

Session ID (paper)	Session Name	Presenter
8B3 (111)	Modeling Advances V	Jiayu Fang
Title of Paper/Presentation	Numerical study of groundwater transfer and injection pilot project in the Mississippi River Valley alluvial aquifer using a groundwater model with airborne resistivity data	

Moderators	Authors	Organization	Country
William Otero Dagmar Llewellyn	Jiayu Fang	National Center for Computational Hydroscience and Engineering (NCCHE), University of Mississippi	United States
	Mohammad Al-Hamdan	NCCHE; Civil Engineering Department; Geology and Geological Engineering Department, University of Mississippi	United States
	Andrew O'Reilly	U.S. Department of Agriculture, Agricultural Research Service, National Sedimentation Laboratory, Watershed Physical Processes Research Unit	United States
	Yavuz Ozeren	National Center for Computational Hydroscience and Engineering, University of Mississippi	United States
	James Rigby	U.S. Geological Survey (USGS), Lower Mississippi-Gulf Water Science Center	United States

Session ID (paper)	Session Name	Presenter
8B4 (238)	Modeling Advances V	Jeremy Giovando
Title of Paper/Presentation	Estimating Stage-Frequency Curves for Engineering Design in Small Ungauged Arctic Watersheds	

Moderators	Authors	Organization	Country
William Otero Dagmar Llewellyn	Chandler Engel	USACE ERDC-CRREL	United States
	Anna Wagner	USACE ERDC-CRREL	United States
	Jeremy Giovando	USACE ERDC-CRREL	United States
	David Ho	USACE-HEC	United States

Session ID (paper)	Session Name	Presenter
8C1 (31)	Advanced Numerical Analysis Topics	Yong Lai
Title of Paper/Presentation	Integrated flow-wave-sediment modeling at Tamsui Estuary with SRH-2D Coast	

Moderators	Authors	Organization	Country
Yong Lai Ali Mazdeh	Yong Lai	U.S. Bureau of Reclamation	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
8C2 (25)	Advanced Numerical Analysis Topics	Yaoxin Zhang
Title of Paper/Presentation	Development of CCHE1D Model for Overland Flow Simulations on 2D Complex Domains	

Moderators	Authors	Organization	Country
Yong Lai	Yaoxin Zhang	University of Mississippi	United States
Ali Mazdeh	Mohammad Al-Hamdan	University of Mississippi	United States
	Ron Bingner	USDA Agricultural Research Service	United States
	Xiaobo Chao	University of Mississippi	United States
	Eddy Langendoen	USDA Agricultural Research Service	United States

Session ID (paper)	Session Name	Presenter
8C3 (313)	Advanced Numerical Analysis Topics	Trey Crouch
Title of Paper/Presentation	Uncertainty of Sediment Transport Modeling through two Run-of-River Mega-dams on the Madeira River	

Moderators	Authors	Organization	Country
Yong Lai	Trey Crouch	University of Florida	United States
Ali Mazdeh	David Kaplan	University of Florida	United States
	Nathan Reaver	University of Florida	United States

Session ID (paper)	Session Name	Presenter
8C4 (103)	Advanced Numerical Analysis Topics	Ari Posner
Title of Paper/Presentation	Monte-Carlo Simulation and Analysis (MCSA) for 1D HECRAS Sediment Transport Modeling: A Case Study in the Navajo and Blanco Rivers of the San Juan Mountains, CO	

Moderators	Authors	Organization	Country
Yong Lai	Ari Posner	Bureau of Reclamation	United States
Ali Mazdeh	Zhengyang Cheng	Hydrologic Research Center	United States
	Konstantine Georgakakos	Hydrologic Research Center	United States
	Robert Padilla	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
8D1 (232)	Hydraulic Modeling of Wildfire Impacts	Nawa Raj Pradhan
Title of Paper/Presentation	Modeling post wildfire hydrology in the Western US	

Moderators	Authors	Organization	Country
Joel Sholtes Kellie Jemes	Nawa Raj Pradhan	Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center	United States
	Ian Floyd	Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center	United States
	Francisca Olmos de Aguilera Bes	Florida International University	United States
	Jang Pak	U.S. Army Corps of Engineers, Institute for Water Resources, Hydrologic Engineering Center	United States
	Taylor Cagle	Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center	United States
	Marcus Berli	Desert Research Institute	United States
	Rose Shillito	Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center	United States
	Stephen Turnbull	Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center	United States
	Jodi Ryder	Environmental Laboratory, U.S. Army Engineer Research and Development Center	United States
	Stephen Brown	Coastal and Hydraulics Laboratory, U.S. Army Engineer Research and Development Center	United States
	Jeremy Giovando	Cold Region Research and Engineering Laboratory, U.S. Army Engineer Research and Development Center	United States
	Jose Paredez	US Army Corps of Engineers, Los Angeles District	United States
	Mitchell Price	US Army Corps of Engineers, Walla Walla District	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
8D2 (49)	Hydraulic Modeling of Wildfire Impacts	Joseph Lange
Title of Paper/Presentation	Gridded CN Method for Post Fire Hydrology	

Moderators	Authors	Organization	Country
Joel Sholtes Kellie Jemes	Joseph Lange	USDA NRCS	United States

Session ID (paper)	Session Name	Presenter
8D3 (300)	Hydraulic Modeling of Wildfire Impacts	Scott David
Title of Paper/Presentation	Predicting post-wildfire risks to and vulnerability of transportation infrastructure	

Moderators	Authors	Organization	Country
Joel Sholtes Kellie Jemes	Scott David	Utah State University	United States
	Patrick Belmont	Utah State University	United States
	Brendan Murphy	Simon Fraser University	United States
	Muneer Ahammad	Utah State University	United States

Session ID (paper)	Session Name	Presenter
8D4 (136)	Hydraulic Modeling of Wildfire Impacts	Rose Shillito
Title of Paper/Presentation	The Effect of Wildfire on Soil Properties, Infiltration, and Runoff: Considerations for Hydrologic Modeling	

Moderators	Authors	Organization	Country
Joel Sholtes Kellie Jemes	Rose Shillito	USACE-ERDC-CHL	United States
	Markus Berli	Desert Research Institute	United States
	Jay Pak	USACE-HEC	United States
	Natalie Memarsadeghi	USACE-ERDC-CHL	United States
	Jeremy Giovando	USACE-ERDC-CRREL	United States
	Nawa Pradhan	USACE-ERDC-CHL	United States
	Stephen Brown	USACE-ERDC-CHL	United States
	Ian Floyd	USACE-ERDC-CHL	United States

Session ID (paper)	Session Name	Presenter
8E1 (79)	Watershed Scale Restoration Evaluation and Planning	Janine Castro
Title of Paper/Presentation	Using Landscape Principles to Guide Largescale Estuary Restoration	

Moderators	Authors	Organization	Country
Janine Castro Jessica Brunty	Janine Castro	US Fish and Wildlife Service	United States
	Dan Bottom	NMFS (Retired)	United States
	Greg Hood	Skagit River System Cooperative	United States
	Kim Jones	Oregon Department of Fish and Wildlife (Retired)	United States
	Kirk Krueger	Washington Department of Fish and Wildlife	United States
	Ron Thom	Pacific Northwest National Laboratory (Retired)	United States

Session ID (paper)	Session Name	Presenter
8E2 (138)	Watershed Scale Restoration Evaluation and Planning	Luke Russell
Title of Paper/Presentation	Watershed-Scale Sediment Dynamics and Stream Restoration Planning	

Moderators	Authors	Organization	Country
Janine Castro Jessica Brunty	Luke Russell	Wolf Water Resources, Inc	United States
	Nick Legg	Wolf Water Resources, Inc	United States
	Sean Welch	Bonneville Power Association	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
8E3 (317)	Watershed Scale Restoration Evaluation and Planning	Tess Wynn-Thompson
Title of Paper/Presentation	Effectiveness of environmental site design in protecting stream channel stability	

Moderators	Authors	Organization	Country
Janine Castro	Tess Wynn-Thompson	Virginia Tech	United States
Jessica Brunty	David Sample	Virginia Tech	United States
	Mohammad Al-Smadi	Virginia Tech	United States
	Sami Towsif Khan	Virginia Tech	United States
	Mina Shahed Behrouz	Virginia Tech	United States
	Andrew Miller	University of Maryland, Baltimore County	United States

Session ID (paper)	Session Name	Presenter
8E4 (78)	Watershed Scale Restoration Evaluation and Planning	Justin Nielsen
Title of Paper/Presentation	Designing for Resiliency - A Passive-Aggressive Approach to Large-Scale Restoration of a River-Wetland Corridor in the Upper Grande Ronde River, Oregon	

Moderators	Authors	Organization	Country
Janine Castro	Justin Nielsen	US Bureau of Reclamation	United States
Jessica Brunty	Mike Knutson	US Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
8F1 (101)	Using Tracers to Characterize Sediment Sources and Dynamics	Amirreza Zarnaghsh
Title of Paper/Presentation	Coupling Hydrograph Separation and High-Frequency Turbidity Data to Assess the Significance of Runoff and Baseflow in Turbidity Generation	

Moderators	Authors	Organization	Country
Gretchen Oelsner	Amirreza Zarnaghsh	University of Kansas	United States
D. Nathan Bradley	Admin Husic	University of Kansas	United States

Session ID (paper)	Session Name	Presenter
8F2 (71)	Using Tracers to Characterize Sediment Sources and Dynamics	Faith Fitzpatrick
Title of Paper/Presentation	Stream Corridor Sediment Budget for Watershed Sediment Source Apportionment for the Forested Little Fork River, Minnesota	

Moderators	Authors	Organization	Country
Gretchen Oelsner	Faith Fitzpatrick	U.S. Geological Survey	United States
D. Nathan Bradley	Shelby Sterner	U.S. Geological Survey	United States
	Anna Baker	U.S. Geological Survey	United States
	Sam Soderman	Koochiching County Soil and Water Conservation District	United States
	Karen Gran	University of Minnesota - Duluth	United States
	Andy Kasun	University of Minnesota - Duluth	United States
	Mike Kennedy	Minnesota Pollution Control Agency	United States
	Phil Norvitch	North St. Louis Soil and Water Conservation District	United States
	Jesse Anderson	Minnesota Pollution Control Agency	United States
	Kevin Stroom	Minnesota Pollution Control Agency	United States
	Matt Gutzmann	Itasca Soil and Water Conservation District	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
8F3 (256)	Using Tracers to Characterize Sediment Sources and Dynamics	Gretchen Oelsner
Title of Paper/Presentation	Multi-faceted approach to advancing basin-scale sediment source and transport models	

Moderators	Authors	Organization	Country
Gretchen Oelsner	Gretchen Oelsner	U.S. Geological Survey	United States
D. Nathan Bradley	Allen Gellis	U.S. Geological Survey	United States
	Se Jong Cho	U.S. Geological Survey	United States
	John Lund	U.S. Geological Survey	United States
	Greg Noe	U.S. Geological Survey	United States
	Katherine Skalak	U.S. Geological Survey	United States
	Laura Gurley	U.S. Geological Survey	United States
	Cara Peterman	U.S. Geological Survey	United States
	Jeb Brown	U.S. Geological Survey	United States
	Francis Parchaso	U.S. Geological Survey	United States
	Grady Ball	U.S. Geological Survey	United States
	Scott Hamshaw	U.S. Geological Survey	United States

Session ID (paper)	Session Name	Presenter
8F4 (106)	Using Tracers to Characterize Sediment Sources and Dynamics	Robert Pavlowsky
Title of Paper/Presentation	Sand and gravel dispersal rates using mine tailings tracers in Big River, Ozark Highlands	

Moderators	Authors	Organization	Country
Gretchen Oelsner	Robert Pavlowsky	Missouri State University	United States
D. Nathan Bradley	Marc Owen	Missouri State University	United States
	Scott Lecce	East Carolina University	United States
	Jennifer Pace-Witt	Crowder College	United States

Session ID (paper)	Session Name	Presenter
8G1 (120)	Modeling of Sediment and Nutrient Dynamics	Elias Getahun
Title of Paper/Presentation	Identifying High Yield Areas of Sediment and Nutrients in an Illinois CREP Watershed	

Moderators	Authors	Organization	Country
Daniel E. Kroes	Elias Getahun	Illinois State Water Survey, Prairie Research Institute, University of Illinois Urbana-Champaign	United States
S. Kossi Nouwakpo	Laura Keefer	Ilinois State Water Survey, Prairie Research Institute, University of Illinois Urbana-Champaign	United States
	Manas Khan	Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign	United States

Session ID (paper)	Session Name	Presenter
8G2 (43)	Modeling of Sediment and Nutrient Dynamics	F. Douglas Shields
Title of Paper/Presentation	Simple model of Lower Mississippi River backwater ecological function	

Moderators	Authors	Organization	Country
Daniel E. Kroes	F. Douglas Shields	cbec eco-engineering	United States
S. Kossi Nouwakpo	William B. Rossell	National Center for Computational Hydroscience and Engineering	United States
	Clifford A. Ochs	University of Mississippi	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
8G3 (132)	Modeling of Sediment and Nutrient Dynamics	Xiaobo Chao
Title of Paper/Presentation	Numerical Modeling of Nutrients and Phytoplankton in a Mississippi Delta Lake by Considering the Sediment Associated Processes	

Moderators	Authors	Organization	Country
Daniel E. Kroes	Xiaobo Chao	The University of Mississippi	United States
S. Kossi Nouwakpo	Mohammad Al-Hamdan	The University of Mississippi	United States
	Ron Bingner	USDA Agricultural Research Service, National Sedimentation Laboratory	United States
	Lindsey Witthaus	USDA Agricultural Research Service, National Sedimentation Laboratory	United States
	Richard Lizotte	USDA Agricultural Research Service, National Sedimentation Laboratory	United States
	Martin Locke	USDA Agricultural Research Service, National Sedimentation Laboratory	United States

Session ID (paper)	Session Name	Presenter
8G4 (264)	Modeling of Sediment and Nutrient Dynamics	James Blount
Title of Paper/Presentation	Stream Corridor Sources of Suspended Sediment and Sediment-Bound Phosphorus from an Urban Tributary to the Great Lakes	

Moderators	Authors	Organization	Country
Daniel E. Kroes	James Blount	USGS	United States
S. Kossi Nouwakpo	Leah Lenoch	USGS	United States
	Faith Fitzpatrick	USGS	United States

Session ID (paper)	Session Name	Presenter
9A1 (6)	Extreme Floods and Droughts I	James Barton
Title of Paper/Presentation	Lake Champlain – Richelieu River Flood Study	

Moderators	Authors	Organization	Country
Faith Fitzpatrick Ali Dadkhah	James Barton	Stantec, Inc.	United States

Session ID (paper)	Session Name	Presenter
9A2 (191)	Extreme Floods and Droughts I	Gary Brunner
Title of Paper/Presentation	Hydrologic Modeling of the May 1889 South Fork Dam Failure	

Moderators	Authors	Organization	Country
Faith Fitzpatrick	Gary Brunner	HDR Inc	United States
Ali Dadkhah	Paul Risher	HDR Inc	United States
	Hongyu Deng	CA Department of Water Resources	United States

Session ID (paper)	Session Name	Presenter
9A3 (206)	Extreme Floods and Droughts I	Faith Fitzpatrick
Title of Paper/Presentation	Connecting Flood-Related Fluvial Erosion and Deposition with Vulnerable Downstream Road-Stream Crossings	

Moderators	Authors	Organization	Country
Faith Fitzpatrick	Faith Fitzpatrick	U.S. Geological Survey	United States
Ali Dadkhah	Kyle Magyera	Wisconsin Wetlands Association	United States
	Jason Laumann	Northwest Wisconsin Regional Planning Commission	United States
	Clement Larson	Northwest Wisconsin Regional Planning Commission	United States
	Stephanie Rockwood	Wisconsin Wetlands Assoociation	United States
	Eric Dantoin	U.S. Geological Survey	United States
	Tom Hollenhorst	U.S. Environmental Protection Agency	United States
	Brandon Krumwiede	National Oceanic and Atmospheric Administration	United States
	Brandon Nelson	U.S. Geological Survey	United States
	Julia Prokopec	U.S. Geological Survey	United States
	Keegan Johnson	U.S. Geological Survey	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
9A4 (241)	Extreme Floods and Droughts I	Katherine Gwynn
Title of Paper/Presentation	Revised Guide Curve dSRD Modeling	

Moderators	Authors	Organization	Country
Faith Fitzpatrick Ali Dadkhah	Katherine Gwynn	Precision Water Resources Engineering	United States

Session ID (paper)	Session Name	Presenter
9B1 (212)	Watershed Studies	Luc Rébillout
Title of Paper/Presentation	Large-scale watershed delineation strategy	

Moderators	Authors	Organization	Country
Jessica LeRoy Robert Burken	Luc Rébillout	NCCHE	United States
	Nuttita Pophet	NCCHE	United States
	Yavuz Ozeren	NCCHE	United States
	Ahmet Sahin	NCCHE	United States
	Mohammad Al-Hamdan	NCCHE	United States
	Paul Smith	NCCHE	United States
	Ron Bingner	USDA-ARS-NSL	United States
	Glenn Herring	USDA-ARS-NSL	United States

Session ID (paper)	Session Name	Presenter
9B2 (173)	Watershed Studies	Jessica Brunty
Title of Paper/Presentation	Sediment Management Measures in West Maui Watersheds	

Moderators	Authors	Organization	Country
Jessica LeRoy Robert Burken	Jessica Brunty	USACE	United States
	Jonathan Stock	USGS	United States

Session ID (paper)	Session Name	Presenter
9B3 (66)	Watershed Studies	Mike Warner
Title of Paper/Presentation	A testbed to develop, apply, and evaluate advances in process-based streamflow prediction for water management in the Columbia River Basin	

Moderators	Authors	Organization	Country
Jessica LeRoy Robert Burken	Chris Frans	Bureau of Reclamation	United States
	Andy Wood	National Center for Atmospheric Research	United States
	Josh Sturtevant	Lynker	United States
	Jane Harrell	US Army Corps of Engineers	United States
	Mike Warner	US Army Corps of Engineers	United States

Session ID (paper)	Session Name	Presenter
9C1 (13)	Flood Hazard and Risk Analysis	Chris Bahner
Title of Paper/Presentation	Flood Risk Reduction Structure for Morgan Lake Dam	

Moderators	Authors	Organization	Country
Melissa Shinbein Ari Posner	Chris Bahner	WEST Consultants, Inc	United States

Session ID (paper)	Session Name	Presenter
9C2 (28)	Flood Hazard and Risk Analysis	Ryan Cahill
Title of Paper/Presentation	Lower Columbia River Flood Stage-Frequency Study	

Moderators	Authors	Organization	Country
Melissa Shinbein Ari Posner	Ryan Cahill	USACE-Portland District	United States
	Chris Bahner	West Consultants	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
9C3 (69)	Flood Hazard and Risk Analysis	Brendan Comport
Title of Paper/Presentation	Channel Capacity and Flood Risk Communication on the Lower White River in Washington State	

Moderators	Authors	Organization	Country
Melissa Shinbein	Brendan Comport	USACE	United States
Ari Posner	Zachary Corum	USACE	United States
	Travis Ball	USACE	United States

Session ID (paper)	Session Name	Presenter
9C4 (77)	Flood Hazard and Risk Analysis	Taylor Cagle
Title of Paper/Presentation	A Screening-Level HEC-HMS Model for Post-Fire Runoff Emergency Assessment	

Moderators	Authors	Organization	Country
Melissa Shinbein	Taylor Cagle	USACE ERDC	United States
Ari Posner	Stephen Brown	USACE ERDC	United States
	Elizabeth Shaloka	USACE	United States
	Kyle Cannon	USACE	United States
	Ian Floyd	USACE ERDC	United States

Session ID (paper)	Session Name	Presenter
9D1 (175)	Evaluation of Wildfire Impacts to Reservoirs and Water Supply	Kathleen Inman
Title of Paper/Presentation	A Total Watershed Workflow for Assessing and Monitoring Post-Wildfire Impacts on Reservoir Water Quality	

Moderators	Authors	Organization	Country
David Williams Scott David	Kathleen Inman	US Army Engineer Research and Development Center, Environmental Laboratory, Water Quality and Contaminant Modeling Branch, Vicksburg, MS	United States
	Jodi Ryder	US Army Engineer Research and Development Center, Environmental Laboratory, Water Quality and Contaminant Modeling Branch, Vicksburg, MS	United States
	Stephen Brown	US Army Engineer Research and Development Center, Coastal and Hydraulics Laboratory, Hydrologic Systems Branch, Vicksburg, MS	United States
	Lauren Melendez	US Army Engineer Research and Development Center, Environmental Laboratory, Water Quality and Contaminant Modeling Branch, Vicksburg, MS	United States
	Kyle Cannon	US Army Engineer Research and Development Center, Coastal and Hydraulics Laboratory, Hydrologic Systems Branch, Vicksburg, MS	United States

Session ID (paper)	Session Name	Presenter
9D2 (297)	Evaluation of Wildfire Impacts to Reservoirs and Water Supply	Brendan Murphy
Title of Paper/Presentation	Water supply vulnerability to post-wildfire reservoir sedimentation: a new modeling framework for the western US with applications to Salt Lake City, Utah	

Moderators	Authors	Organization	Country
David Williams	Brendan Murphy	Simon Fraser University	Canada
Scott David	Scott David	Utah State University	United States
	Patrick Belmont	Utah State University	United States
	Muneer Ahammad	Utah State University	United States
	Jonathan Czuba	Virginia Tech	United States
	Sara Wall	Utah State University	United States
	Larissa Yocom	Utah State University	United States
	Kipling Klimas	Utah State University	United States
	Justin Stout	Utah State University	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
9D3 (293)	Evaluation of Wildfire Impacts to Reservoirs and Water Supply	Kent Collins
Title of Paper/Presentation	Evaluating Watershed Response and Increases in Sediment Loading to Willow Creek and Willow Creek Reservoir Due to East Troublesome Fire	

Moderators	Authors	Organization	Country
David Williams Scott David	Kent Collins	Bureau of Reclamation	United States

Session ID (paper)	Session Name	Presenter
9D4 (299)	Evaluation of Wildfire Impacts to Reservoirs and Water Supply	Scott David
Title of Paper/Presentation	Fire-WATER: a new GIS framework to assess post-wildfire erosion, watershed-scale sediment dynamics, and downstream impacts in the western US	

Moderators	Authors	Organization	Country
David Williams Scott David	Scott David	Utah State University	United States
	Brendan Murphy	Simon Fraser University	Canada
	Patrick Belmont	Utah State University	United States
	Jonathan Czuba	Virginia Tech	United States
	Muneer Ahammad	Utah State University	United States

Session ID (paper)	Session Name	Presenter
9E1 (227)	Process and Design Considerations for Restoration	Peter Wilcock
Title of Paper/Presentation	Beyond Bankfull	

Moderators	Authors	Organization	Country
Michael Sixta Aubrey Harris	Peter Wilcock	Watershed Sciences, Utah State University	United States

Session ID (paper)	Session Name	Presenter
9E2 (188)	Process and Design Considerations for Restoration	Heather Shaughnessy
Title of Paper/Presentation	Impacts of a Persisting Flood on the Missouri River's Bank Stabilization and Navigation Project	

Moderators	Authors	Organization	Country
Michael Sixta Aubrey Harris	Heather Shaughnessy	USACE	United States

Session ID (paper)	Session Name	Presenter
9E3 (265)	Process and Design Considerations for Restoration	Daniel Dombroski
Title of Paper/Presentation	Modeling Riparian Vegetation and Effects on Hydraulics and Sediment Transport in Support of River Restoration and Management	

Moderators	Authors	Organization	Country
Michael Sixta Aubrey Harris	Daniel Dombroski	Bureau of Reclamation	United States
	Blair Greimann	Stantec	United States

Session ID (paper)	Session Name	Presenter
9E4 (249)	Process and Design Considerations for Restoration	Michael Sixta
Title of Paper/Presentation	Glen Canyon Sloughs Conceptual Design	

Moderators	Authors	Organization	Country
Michael Sixta Aubrey Harris	Michael Sixta	Bureau of Reclamation	United States
	Blair Greimann	Stantec	United States
	Timothy Randle	Bureau of Reclamation	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
9F1 (159)	Sediment Yield and Transport Modeling	Travis Dahl
Title of Paper/Presentation	Experimental Exploration of Sediment Density Interactions	

Moderators	Authors	Organization	Country
Se Jong Cho	Travis Dahl	USACE ERDC-CHL	United States
Ben Abban	Autumn Murray	USACE ERDC-CHL	United States
	Stanford Gibson	USACE IWR-HEC	United States
	Braxton Chewning	USACE ERDC-CHL	United States

Session ID (paper)	Session Name	Presenter
9F2 (252)	Sediment Yield and Transport Modeling	Se Jong Cho
Title of Paper/Presentation	Sediment sources and connectivity linked to hydrologic pathways and geomorphic processes: a conceptual model to specify sediment sources and pathways through space and time	

Moderators	Authors	Organization	Country
Se Jong Cho	Se Jong Cho	US Geological Survey	United States
Ben Abban	Diana Karwan	University of Minnesota	United States
	Katherine Skalak	US Geological Survey	United States
	James Pizzuto	University of Delaware	United States
	Max Huffman	University of Delaware	United States

Session ID (paper)	Session Name	Presenter
9F3 (257)	Sediment Yield and Transport Modeling	John Barkach
Title of Paper/Presentation	Empirical Equation to Estimate Bedload Sediment Delivery to the Great Lakes from 60 Michigan Rivers	

Moderators	Authors	Organization	Country
Se Jong Cho	John Barkach	Wayne State University	United States
Ben Abban	Carol Miller	Wayne State University	United States
	James Selegean	USACE Detroit District	United States
	Emily Bradley	Wayne State University	United States

Session ID (paper)	Session Name	Presenter
9F4 (233)	Sediment Yield and Transport Modeling	Zachary Corum
Title of Paper/Presentation	Practical evaluation of USACE sediment models on the Lower White River in Washington State – Case Study of the Countyline Levee Setback Project	

Moderators	Authors	Organization	Country
Se Jong Cho	Zachary Corum	USACE Seattle District	United States
Ben Abban	Keaton Jones	USACE ERDC Coastal Hydraulics Laboratory	United States
	Travis Dahl	USACE ERDC Coastal Hydraulics Laboratory	United States

Session ID (paper)	Session Name	Presenter
9G1 (157)	Sediment Modeling Panel	Stanford Gibson
Title of Paper/Presentation	Sediment Modeling Panel Discussion (Part 1): Pre-Modeling Practices	

Moderators	Authors	Organization	Country
Doug Shields	Stanford Gibson	Hydrologic Engineering Center	United States
Stanford Gibson	Gary Brown	US Army Corps of Engineers - ERDC - Coastal and Hydraulics Lab	United States
	Blair Greimann	Stantec	United States
	Alejandro Sánchez	Hydrologic Engineering Center	United States

SEDHYD 2023 TECHNICAL PAPERS

Session ID (paper)	Session Name	Presenter
9G2 (158)	Sediment Modeling Panel	Stanford Gibson
Title of Paper/Presentation	Sediment Modeling Panel (Part 2): Sediment Model Calibration and Evaluation	

Moderators	Authors	Organization	Country
Doug Shields	Stanford Gibson	Hydrologic Engineering Center	United States
Stanford Gibson	Alejandro Sanchez	Hydrologic Engineering Center	United States
	Gary Brown	US Army Corps of Engineers - ERDC - Coastal and Hydraulics Lab	United States
	Blair Greimann	Stantec	United States
	Alex Sánchez	USACE-HEC	United States

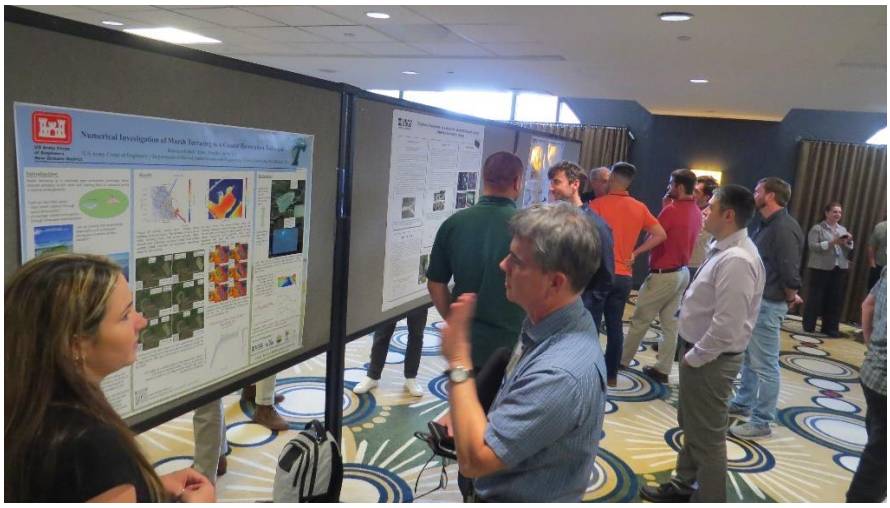
Session ID (paper)	Session Name	Presenter
9G3 (160)	Sediment Modeling Panel	Stanford Gibson
Title of Paper/Presentation	Sediment Modeling Panel (Part 3): Sediment Modeling Failure Modes and Best Practices	

Moderators	Authors	Organization	Country
Doug Shields	Stanford Gibson	Hydrologic Engineering Center	United States
Stanford Gibson	Gary Brown	US Army Corps of Engineers - ERDC - Coastal and Hydraulics Lab	United States
	Blair Greimann	Stantec	United States
	Alejandro Sánchez	Hydrologic Engineering Center	United States
	Gary Brown	US Army Corps of Engineers - ERDC - Coastal and Hydraulics Lab	United States

Session ID (paper)	Session Name	Presenter
9G4 (161)	Sediment Modeling Panel	Stanford Gibson
Title of Paper/Presentation	Sediment Modeling Panel (Part 4): Forecasting with Sediment Models and Q&A	

Moderators	Authors	Organization	Country
Doug Shields	Stanford Gibson	Hydrologic Engineering Center	United States
Stanford Gibson	Gary Brown	US Army Corps of Engineers - ERDC - Coastal and Hydraulics Lab	United States
	Blair Greimann	Stantec	United States
	Alejandro Sánchez	Hydrologic Engineering Center	United States

SEDHYD 2023 POSTER PRESENTATIONS



Session ID (paper)	Session Name
Poster (316)	Poster
Title of Paper/Presentation	2019 Flood Impacts on the Lower Missouri River

Authors	Organization	Country
Lesli Key	US Army Corps of Engineers Kansas City District	United States
Michael Mansfield	US Army Corps of Engineers Kansas City District	United States
John Shelley	US Army Corps of Engineers Kanas City District	United States

Session ID (paper)	Session Name
Poster (58)	Poster
Title of Paper/Presentation	A combined hydraulic-habitat model for assessing restoration of fish passage at a low head dam

Authors	Organization	Country
Ben O'Connor	US Army Corps of Engineers	United States
Chanda Littles	US Army Corps of Engineers	United States

Session ID (paper)	Session Name
Poster (306)	Poster
Title of Paper/Presentation	Bonnet Carré Forebay Elevation Analysis

Authors	Organization	Country
Hailey Laurent	USACE MVN	United States
Deborah Centola	USACE MVN	United States

Session ID (paper)	Session Name
Poster (113)	Poster
Title of Paper/Presentation	An Analysis of the 9 January 2018 Montecito, California Post-fire Runoff Event Using GSSHA Hydrological Model

Authors	Organization	Country
Francisca Olmos de Aguilera	Florida International University	United States
Nawa Pradhan	U.S. Army Corps of Engineers, Engineering Research and Development Center	United States
Hector Fuentes	Florida International University	United States
Ian Floyd	U.S. Army Corps of Engineers, Engineering Research and Development Center	United States
Taylor Cagle	U.S. Army Corps of Engineers, Engineering Research and Development Center	United States

SEDHYD 2023 POSTER PRESENTATIONS

Session ID (paper)	Session Name
Poster (147)	Poster
Title of Paper/Presentation	Application of FRAME Modeling to Evaluate Long-Term Morphological Changes in the Sabougla Creek Watershed

Authors	Organization	Country
Amanda Cox	Saint Louis University	United States
Philip Soar	University of Portsmouth	United States
David Biedenharn	USACE CHL-ERDC	United States
Charles Little	Mendrop Engineering Resources, LLC	United States
Chris Haring	USACE CHL-ERDC	United States
Travis Dahl	USACE CHL-ERDC	United States
Colin Thorne	University of Nottingham	United Kingdom

Session ID (paper)	Session Name
Poster (47)	Poster
Title of Paper/Presentation	Application of remote sensing techniques to characterize riparian vegetation for modeling hydraulic roughness

Authors	Organization	Country
Smriti Chaulagain	University of New Mexico	United States
Mark C. Stone	University of New Mexico	United States
Daniel E Dombroski	United States Bureau of Reclamation	United States

Session ID (paper)	Session Name
Poster (117)	Poster
Title of Paper/Presentation	Calculating Annual Flood Damages Reduced using the Corps Water Management System

Authors	Organization	Country
Simon Evans	Hydrologic Engineering Center, US Army Corps of Engineers	United States

Session ID (paper)	Session Name
Poster (29)	Poster
Title of Paper/Presentation	Climate-driven flood effects on channel stability, sedimentation, and freshwater mussel habitat in rivers draining the Ozark Highlands

Authors	Organization	Country
Joshua Hess	Missouri State University - Ozarks Environmental and Water Resources Institute	United States
Robert Pavlowsky	Missouri State University - Ozarks Environmental and Water Resources Institute	United States
Scott Lecce	East Carolina University	United States

Session ID (paper)	Session Name
Poster (194)	Poster
Title of Paper/Presentation	Combining hydropower water intake and sediment bypassing for improvement of reservoir sustainability in a montane area: field tests

Authors	Organization	Country
Ssu-Yao Yang	Sinotech Engineering Consultants, LTD,	Taiwan (R.O.C.)
Bing-Shiou Tsai	Sinotech Engineering Consultants, LTD.	Taiwan (R.O.C.)
Wen-Siang Chung	Sinotech Engineering Consultants, LTD.	Taiwan (R.O.C.)
Chih-Hsien Hsieh	Sinotech Engineering Consultants, LTD.	Taiwan (R.O.C.)
Jihn-Sung Lai	Department of Bioenvironmental Systems Engineering, NTU	Taiwan (R.O.C.)

SEDHYD 2023 POSTER PRESENTATIONS

Session ID (paper)	Session Name
Poster (143)	Poster
Title of Paper/Presentation	Comparison of measured bedload with predictions from transport equations in an unarmored ephemeral channel

Authors	Organization	Country
Rebecca Moskal	New Mexico Tech	United States
Daniel Cadol	New Mexico Tech	United States
Kyle Stark	San Francisco Estuary Institute	United States
Loc Luong	New Mexico Tech	United States
David Varyu	Bureau of Reclamation	United States
Jonathan Laronne	Ben Gurion University of the Negev	Israel

Session ID (paper)	Session Name
Poster (16)	Poster
Title of Paper/Presentation	Corps Water Management System (CWMS) - Modeling for Real-Time Water Management

Authors	Organization	Country
Alex Davis	USACE, CEIWR-HEC	United States

Session ID (paper)	Session Name
Poster (263)	Poster
Title of Paper/Presentation	Development of an operating mechanism for a flap on a BL-84 sampler

Authors	Organization	Country
Cole Lucero	Colorado State University	United States
Sarah Alramzi	Colorado State University	United States
David Pizzi	Alden Research Laboratory	United States

Session ID (paper)	Session Name
Poster (240)	Poster
Title of Paper/Presentation	Experimental observations of flow and bed morphology in a meandering compound channel with variable density floodplain vegetation

Authors	Organization	Country
Daniel White	Colorado State University	United States
Ryan Morrison	Colorado State University	United States
Peter Nelson	Colorado State University	United States

Session ID (paper)	Session Name
Poster (295)	Poster
Title of Paper/Presentation	Numerical Investigation of Marsh Terracing as a Coastal Restoration Technique

Authors	Organization	Country
Katelyn Keller	U.S. Army Corps of Engineers	United States
Ehab Meselhe	Tulane University	United States
Kelin Hu	Tulane University	United States

Session ID (paper)	Session Name
Poster (57)	Poster
Title of Paper/Presentation	Evaluating post-fire geomorphic change on paired mulched and unmulched watersheds using repeat drone surveys

Authors	Organization	Country
Lindsey Hayter	Colorado State University	United States
Peter Nelson	Colorado State University	United States

SEDHYD 2023 POSTER PRESENTATIONS

Session ID (paper)	Session Name
Poster (226)	Poster
Title of Paper/Presentation	Large-scale remote sensing of geomorphic change in mulched and unmulched watersheds burned in the 2020 East Troublesome Fire, Colorado

Authors	Organization	Country
John Murray	Colorado State University	United States
Peter Nelson	Colorado State University	United States

Session ID (paper)	Session Name
Poster (177)	Poster
Title of Paper/Presentation	Sediment Supply from Bank Caving on the Lower Mississippi River, 1765 to Present

Authors	Organization	Country
Autumn Murray	USACE ERDC CHL REEB	United States
David Biedenharn	USACE ERDC CHL REEB	United States

Session ID (paper)	Session Name
Poster (305)	Poster
Title of Paper/Presentation	SEDCAM: Continued Development of a Non-Contact Sediment Surrogate Technique Based on Multispectral Imagery

Authors	Organization	Country
Adam Mosbrucker	US Geological Survey	United States
Matthew Gyves	US Geological Survey	United States

Session ID (paper)	Session Name
Poster (312)	Poster
Title of Paper/Presentation	Downstream Impacts of the Rio Coca Headcut

Authors	Organization	Country
Stanford Gibson	Hydrologic Engineering Center	United States
Pedro Barrera Crespo	La Corporación Eléctrica del Ecuador (CELEC) Ecuador	Ecuador
Diego Jaya	La Corporación Eléctrica del Ecuador (CELEC) Ecuador	Ecuador
Amy East	US Geological Survey - Pacific Coastal and Marine Science Center	United States

Session ID (paper)	Session Name
Poster (321)	Poster
Title of Paper/Presentation	Sedimentary facies, stratigraphy, and depositional environments of the Ecca Group, Karoo Supergroup in the Eastern Cape Province of South Africa

Authors	Organization	Country
Christopher Baiyegunhi	University of Limpopo	South Africa

Session ID (paper)	Session Name
Poster (323)	Poster
Title of Paper/Presentation	Dynamics of the salt-water wedge in the lowermost Mississippi River during the 2022 low flow season.

Authors	Organization	Country
Brendan Yuill	US Army Corps of Engineers	United States
Gary Brown	US Army Corps of Engineers	United States
Eden Krolopp	US Army Corps of Engineers	United States
Hailey Laurent	US Army Corps of Engineers	United States
David Ramirez	US Army Corps of Engineers	United States

SEDHYD 2023 POSTER PRESENTATIONS

Session ID (paper)	Session Name
Poster (5)	Poster
Title of Paper/Presentation	US Army Corp of Engineers Numerical Model Development for Post-Wildfire Flood Risk Management

Authors	Organization	Country
Ian Floyd	US Army ERDC	United States
Nawa Pradhan	US Army ERDC	United States
Jang Pak	US Army Corp of Engineers, Hydrologic Engineering Center	United States
Moosub Eom	US Army Corp of Engineers	United States

Session ID (paper)	Session Name
Poster (310)	Poster
Title of Paper/Presentation	Data Collection and Urban Watershed Modeling of St. Louis Bioretention Areas

Authors	Organization	Country
Claire Croley	Missouri University of Science and Technology	United States
Robert Holmes	Missouri University of Science and Technology	United States

Session ID (paper)	Session Name
Poster (326)	Poster
Title of Paper/Presentation	Mid-Breton Sediment Diversion Project Overview and Purpose

Authors	Organization	Country
Brad Barth	Coastal Protection and Restoration Authority, Baton Rouge	United States
Matthew Hoy	Stantec Consulting Services Inc.	United States
Scott Peyton	Stantec Consulting Services Inc.	United States
Adam Witt	Stantec Consulting Services Inc.	United States
Qimiao Lu	Baird and Associates	United States
Rob Nairn	Baird and Associates	United States
Rebecca Quan	Baird and Associates	United States

Session ID (paper)	Session Name
Poster (135)	Poster
Title of Paper/Presentation	Total Sediment Yield in Distributive Watersheds

Authors	Organization	Country
Michael Gerlach	West Consultants, Inc.	United States
Andrew Daus	West Consultants, Inc.	United States

Session ID (paper)	Session Name
Poster (327)	Poster
Title of Paper/Presentation	Data Collection and Analysis in Support of the Mid-Breton Sediment Diversion Project

Authors	Organization	Country
Brad Barth	Coastal Protection and Restoration Authority, Baton Rouge	United States
Rebecca Quan	Baird and Associates	United States
Qimiao Lu	Baird and Associates	United States
Rob Nairn	Baird and Associates	United States
Jim Lewis	Baird and Associates	United States
Matthew Hoy	Stantec Consulting Services Inc.	United States
Scott Peyton	Stantec Consulting Services Inc.	United States
Adam Witt	Stantec Consulting Services Inc.	United States

SEDHYD 2023 POSTER PRESENTATIONS

Session ID (paper)	Session Name
Poster (185)	Poster
Title of Paper/Presentation	Indirect Sediment Transport Measurement in the Upper White River on Mount Rainier

Authors	Organization	Country
Joanna Curran	USACE	United States
Lea Manley	USACE	United States

SEDHYD 2023 MODEL DEMONSTRATIONS

Session ID (paper)	Session Name
Model (285)	Model Demonstration
Title of Paper/Presentation	3D CFD modeling with FLOW-3D HYDRO

Authors	Organization	Country
Brian Fox	Flow Science	United States

Session ID (paper)	Session Name
Model (273)	Model Demonstration
Title of Paper/Presentation	Demonstration of DSS-WISE Web, A Web-Based, Automated Dam-Break and Levee Breach Flood Modeling System

Authors	Organization	Country
Marcus McGrath	University of Mississippi	United States
Mohammad Al-Hamdan	University of Mississippi	United States
Nuttita Pophet	University of Mississippi	United States
Paul Smith	University of Mississippi	United States
James Demby	FEMA National Dam Safety Program	United States
Gokhan Inci	FEMA National Dam Safety Program	United States
Preston Wilson	FEMA National Dam Safety Program	United States

Session ID (paper)	Session Name
Model (171)	Model Demonstration
Title of Paper/Presentation	Demonstration of the KINEROS2-RHEM-AGWA Suite of Modeling Tools

Authors	Organization	Country
David Goodrich	USDA-ARS	United States
D. Phillip Guertin	University of Arizona	United States
I. Shea Burns	University of Arizona	United States
Carl Unkrich	USDA- ARS	United States
Patrick Broxton	University of Arizona	United States
Yoganand Korgaonkar	University of Arizona	United States
Mariano Hernandez	University of Arizona	United States
Phil Heilman	USDA-ARS	United States
Haiyan Wei	University of Arizona	United States
Mark Kautz	USDA-ARS	United States
C. Jason Williams	USDA-ARS	United States

SEDHYD 2023 MODEL DEMONSTRATIONS

Session ID (paper)	Session Name
Model (274)	Model Demonstration
Title of Paper/Presentation	Development of an interactive web-based user interface for AIMS (Computer model demonstration)

Authors	Organization	Country
Ahmet Sahin	NCCHE	United States
Yavuz Ozeren	NCCHE	United States
Luc Rébillout	NCCHE	United States
Nuttita Pophet	NCCHE	United States
Ron Bingner	SDA-ARS - NSL	United States
Mohammad Al-Hamdan	NCCHE	United States
Paul Smith	NCCHE	United States

Session ID (paper)	Session Name
Model (95)	Model Demonstration
Title of Paper/Presentation	Ensemble Compute Applications in HEC-HMS

Authors	Organization	Country
Matthew Fleming	USACE, Institute for Water Resources, Hydrologic Engineering Center	United States
Gregory Karlovits	USACE, Institute for Water Resources, Hydrologic Engineering Center	United States
Natalya Sokolovskaya	USACE, Institute for Water Resources, Hydrologic Engineering Center	United States
Joshua Willis	USACE, Institute for Water Resources, Hydrologic Engineering Center	United States

SEDHYD 2023 Short Course Descriptions

All short courses and field trips will be held on either Monday, May 8 or Friday, May 12, 2023. There are no courses on Friday afternoon. The full conference registration includes either 1 full-day short course, 2 half-day short courses, or 1 field trip. Conference attendees may register for additional short courses or field trips for an additional fee.

SHORT COURSE:
1. Reservoir Sedimentation: Measuring and Managing into the Future

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 5:00 pm

DESCRIPTION:
Sedimentation and loss of storage is a chronic problem in reservoirs big and small. Reservoir managers are looking to maintain current benefits and reduce the loss of benefits in the future. To preserve these benefits, a plan for reservoir sustainability must be developed through studies and analysis. Reservoir sedimentation analysis is becoming a key component in many O&M, environmental, hydropower, and flood risk reduction studies. USACE engineers will demonstrate how to analyze reservoir sedimentation problems and explain how to select and assess solutions using tools and technologies that represent current best practices, including empirical equations and numerical models. This workshop will include numerous case studies, tabletop demonstrations, and a demonstration of the application of numerical models.

The workshop topics include a brief overview of sedimentation mechanics and computing current and future reservoir volume change based on available data. The afternoon session will cover available management methods, selecting a reservoir management method, empirical analysis for reservoir future without project conditions, and demonstration of using numerical modeling to evaluate sediment management scenarios.

Morning Session 8:00am-12:00pm
Why does it matter?
• Predicting Future Reservoir Sedimentation and Impacts without Management o Calculating deposition from rangelines or bathymetric surfaces
• Calculating deposition with limited or no data
• Application of sediment rating curves
• Workshop: Developing a sediment rating curve
• Estimating trapping efficiency with the Brune Curve method
• Estimating future storage volumes using a sediment budget approach
• Workshop: Using a rating curve and Brune Curve to estimate future storage volumes

Afternoon Session 1:00pm-4:00pm
What methods are available?
• Overview of Reservoir Sediment Management Methods o Applications
• Case Studies
• Tabletop demos
• Workshop: Estimating drawdown flushes with the Atkinson method
• Numerical Modeling Workshop: What do models tell us that the above analyses cannot? (HEC-RAS 1D and 2D examples). Bring a laptop with HEC-RAS v6.3+ and work along!

INSTRUCTORS:

John Shelley, Ph.D., P.E., US Army Corps of Engineers, Kansas City District
Dr. John Shelley is a hydraulic engineer and sedimentation specialist at the US Army Corps of Engineers, Kansas City District, where he focuses on river and reservoir sediment management, bank stabilization, and quantitative geomorphology. John has analyzed sedimentation at 21 large and medium-sized reservoirs across multiple states and countries. He has organized numerous workshops and taught short courses on reservoir sedimentation and sediment modeling across the United States and in the countries of Brazil and Laos. John is also an adjunct professor at William Jewell College, where he teaches river engineering, and a registered professional engineer in the State of Kansas. John received his BS in Civil Engineering from Brigham Young University and his Ph.D. in Civil Engineering from the University of Kansas.

Travis Dahl, Ph.D., P.E., US Army Corps of Engineers, ERDC Coastal and Hydraulics Lab
Dr. Travis Dahl is a Research Hydraulic Engineer at the U.S. Army Engineer Research and Development Center's Coastal & Hydraulics Laboratory, where he has spent the last 8 years working on a range of sediment issues, including reservoir sedimentation. He has worked on sediment and reservoir issues across the U.S. and around the world. Most recently, he led a research work unit focused on improving reservoir sediment management. He started his USACE career with the Detroit District, spending a decade working on sediment and water management projects in the Great Lakes region.

Stanford Gibson, Ph.D., US Army Corps of Engineers, Hydrologic Engineering Center
Dr. Stanford Gibson is the sediment specialist at the Hydrologic Engineering Center (HEC) where he has worked for 20 years. He is responsible for the sediment transport capabilities in HEC-RAS. His areas of expertise include sediment modeling, debris flow, sustainable reservoir sediment-management analysis, and dam removal simulations. Stanford also regularly applies sediment models to support ecosystem restoration, flood damage reduction, and navigation projects and has taught hydraulics and sediment transport in more than ten countries. Stanford has a PhD in Civil and Environmental Engineering from UC Davis, and Masters' degrees in Geotechnical Engineering, Restoration Ecology, and Theology. Dr. Gibson has published more than fifteen papers in peer reviewed

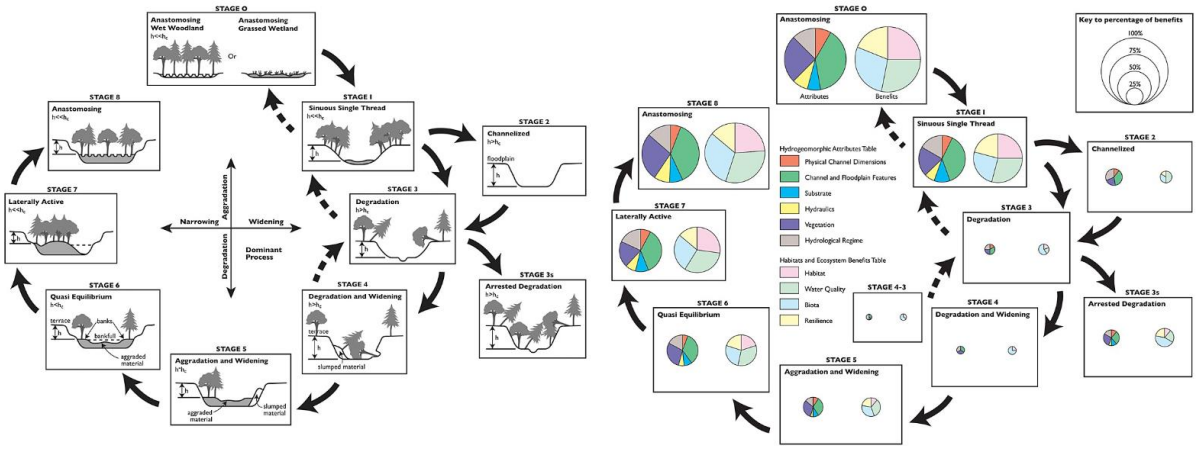
journals and more than 50 other publications. He posts regular YouTube Videos on sediment and modeling topics: https://www.youtube.com/user/stanfordgibson

Paul Boyd, Ph.D., P.E., US Army Corps of Engineers, Omaha District
Dr. Paul Boyd is the Regional Technical Specialist for Sedimentation at the Omaha District, US Army Corps of Engineers. In his 20-year career he has worked on numerous assessments of reservoir sedimentation around the world and is involved in developing Reservoir Sediment Management Plans for select USACE reservoirs. He also serves as a USACE representative on the SEDHYD Sedimentation Committee and the National Reservoir Sedimentation and Sustainability Team (NRSST).

SHORT COURSE:
2. Stage 0/8 River Restoration Workshop

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 5:00 pm

DESCRIPTION:
What are Stages 0 and 8?
Stage Zero is the initial, pre-disturbance condition in the 'Stream Evolution Model' (SEM) proposed by Cluer and Thorne (2013).



Stream Evolution Model proposed by Cluer and Thorne (2014)

In the SEM, Stage Zero is characterised by an abundance of wide range of hydromorphic attributes and ecosystem benefits, high fluvial complexity, and full connectivity to the floodplain and the hyporheic aquifer. Stage Zero is a condition in which an alluvial (self-formed) river and its floodplain have been undisturbed for a period of time sufficient to allow the cross-sectional geometry, planform pattern and long-stream profile to adjust to the catchment (watershed in US parlance) context, and prevailing flow, sediment, and biological processes. When in a Stage Zero condition, the river characteristically comprises of a river-wetland corridor that may feature a patchy-wetland without a distinct channel, a multi-threaded planform (which may be braided, wandering, or anastomosed) or a single-threaded, meandering planform with side-channels.

The surface water component constitutes the stream and floodplain flows, which may be perennial, intermittent or ephemeral. The sub-surface component of the river (the 'hyporheos' – literally 'the river below') is fully-connected to the surface flows but may, or may not, be connected to the regional, groundwater aquifer. When studying, describing and evaluating any alluvial river (but especially one that is in its Stage Zero condition), it is important to do so in three dimensions (long-stream, lateral (i.e. cross valley), and vertical), because a river is, by definition, "a system of inter-connected, surface and sub-surface flows that form a unitary whole".

Anthropogenic disturbance often causes a stream that is fully connected to its floodplain to incise and widen (Stages 1-4) but experience shows that, eventually, the channel aggrades and narrows, recovering to something close to its pre-disturbance condition (Stage 8).

What is 'Stage 0/8' Restoration?
During the early-2000s, US Forest Service river restoration practitioners moved from channel-centered restoration to valley-wide treatments that focused more on valley and floodplain processes. This shift involved filling incised channels in unconfined alluvial valleys to recreate valley-wide connectivity. These reconnected floodplains in the Pacific Northwest, USA have increased habitat for threatened and endangered species of fish and wildlife, serve as foundational areas for food web and water table recovery and act as refugia during floods and fires. In response to Cluer and Thorne's 2014 paper, Forest Service practitioners began referring to their projects as "Stage Zero Restoration", and use of this 'shorthand' term for river-floodplain reconnection has now spread across North America and the UK. Restoration to a Stage Zero condition can be achieved by filling-in a degraded channel mechanically – which is sometimes termed a 'valley floor reset' and has been equated to pressing 'Ctrl-Alt-Delete' to clear an intractable computer problem. This approach is particularly apt if removal of redundant, artificial features such as levees and embankments can supply the sediment needed to fill the incised channel. However, Stage Zero is a river restoration outcome, rather than a specific river restoration approach, and in less severely degraded streams, restoration to Stage Zero can also be achieved using a raft of Light Touch, Process-Based Restoration (LTPBR) approaches, especially when beaver can be reintroduced or allowed to re-colonize a river reach from which they

were previously extirpated. Stage Zero can therefore be thought of as a destination rather than a journey. The path taken to restore a river to Stage Zero should be bespoke to the catchment context and anthropogenic setting of the river.

In many locations, restoration of a river to its pre-disturbance condition may currently be impractical due to the severity of the degradation and presence of anthropogenic constraints. In these situations, restoration to 'Stage 8' by reconnecting it to a lower, inset floodplain is still preferrable to attempting to restore channel functions without fully reconnecting an incised stream to even part floodplain.

Why is this short course being offered at SEDHYD in 2023, and who should take it?

In 2019, a 'Stage 0' short course attracted a lot of attention and a large group of participants. At that time, the small number and narrow geographical spread of implemented projects limited the range experience and volume of post-project monitoring data available. Since 2019, dozens of 'Stage 0' and 'Stage 8' restorations have been implemented coast to coast, as well as in the UK. Consequently, in the 2023 workshop, the presenters will cover not only the theory and practice of restoration to 'Stages 0 & 8'; they will also report on experience gained and lessons learned from projects performed on headwater, middle and lowland streams located not only in the Pacific Northwest, but also California, Colorado, Kentucky, Maryland & Pennsylvania, as well as in the United Kingdom.

The short course is recommended for river engineers, scientists, and managers with an interest in restoring lost river functions and habitats while simultaneously building resilience to climate change and wildfires, and managing down future river and flood-related risks to people, property, infrastructure and ecosystems.

Welcome, Introductions and Aim of Workshop	Brian Cluer
Background and theory How rivers and floodplains work and work better together, anabranching channels in history, anthropogenic impacts, bankfull discharge in depositional vs transport reaches, constrained vs unconstrained reaches, stable channel design vs stable channel evolution & adaptation	Colin Thorne
The Long Road to Stage Zero Review of disturbance history, early attempts at restoring incised channels, and transition to 'thinking outside the channel', stressing lessons learned & learning by doing	Janine Castro
Practical 1 - Identifying candidate sites Identifying potential sites for reconnecting anthropogenically-incised streams to some (Stage 8) or all (Stage 0) of their pre-disturbance floodplains	Brian Cluer
Geomorphic analysis and design Channel-floodplain reconnection based on Geomorphic Grade Line (GGL), Relative Elevation Models (REM), cut/fill balance, d/s grade control, & preserving relict features in headwater, upland and lowland contexts	Brice Crayne
Practical 2 – Creating a GGL and REM in practice Geomorphic analysis for a floodplain reconnection project using the GGL and REM approach. Applying the GGL-REM Toolbox in practice to a site selected by the participants.	Amanda Jones PE
Engineering analysis and design H & H analysis & modeling, stream & site surveys, permitting (ESA, FEMA, etc.), engineering design, contracting, and construction (water management planning, sediment control, supervising & working with contractors)	Amanda Jones PE
Overview of completed projects Starting with small projects in meadows and creeks and scaling up to rivers. Drawing on examples from the USA and UK.	Colin Thorne
Case Study 1: Whychus Creek A multi-phase floodplain reconnection project on a gravel-bed, headwater tributary to the Deschutes River, Oregon.	Mathias Perle, Lauren Mork & Brian Cluer
Case Study 2: Low-Tech Process Based Restoration Putting the LTPBR approach into practice when restoring streams to Stages 8 or 0 in a variety of stream types and watershed contexts.	Jared McKee
Case Study 3: Deer Creek, South Fork & Mainstem McKenzie Rivers Two multi-phase floodplain reconnection projects in a large, high-energy river basin in the Western Cascades of Oregon	Colin Thorne
Knowledge Exchange Forum: Lessons Learned + Future Potential Overview of issues with full floodplain reconnection. Experience, opportunities, outcomes, benefits, risks and challenges: physical, biological, social, and regulatory.	All
Closure Each participant gives their brief comments, feedback and overall reaction, plus closing remarks from speakers and suggestions for follow-up actions/next steps	All

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SHORT COURSE:
3. OpenFOAM CFD Workshop

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 5:00 pm

DESCRIPTION:

The objective of the course is to enable participants to perform computational fluid dynamics (CFD) numerical analysis utilizing the software OpenFOAM. OpenFOAM is a free, open source CFD software that has a large user base across academia and industry. The workshop will cover flow volume development, mesh case development, simulation case development, simulation case execution, and post-processing.

INSTRUCTORS:
Brian Hall is a Registered Professional Engineer currently working in the U.S. Army Corps of Engineers Dam Safety Modification Mandatory Center of Expertise (DSMMCX). He has over 11 years of hydraulic and hydrologic engineering experience with the U.S. Army Corps of Engineers. Brian has a Bachelor's and Master's degree in Environmental Engineering for Rensselaer Polytechnic Institute (Troy, NY). Brian worked for the Risk Management Center (RMC) and the Memphis District prior to his current position in the DSMMCX. He has been involved in a multitude of dam and levee safety, flood damage reduction, and navigation projects.

Nick Koutsunis is a registered professional engineer with 12 years of experience currently working at the U.S. Army Corps of Engineers Dam Safety Modification Center. Nick has performed a range of hydraulic engineering analyses and designs for dams across the country, including watershed-scale hydrologic assessments and hydraulic modeling. Nick is currently focused on the development and implementation of a computational fluid dynamics modeling workflow using open-source software for use across the USACE dam portfolio.

Dana Moses is a registered professional engineer, professional hydrologist, and Diplomate of Water resource Engineering with close to 20 years of experience in design, construction, and rehabilitation of hydraulic structures. Dana is involved with multiple aspects of research and policy development for the US Army Corps related to extreme flow hydrology, hydraulic structures analysis and design, and risk informed design procedures. In addition to these activities, Dana is also the lead technical advisor on several large spillway modifications currently in design and construction.

SHORT COURSE:
4. Sediment Fingerprinting

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
Sediment is a major pollutant in U.S. waterways degrading both ecologic health and infrastructure. In order to reduce sediment to these waterways it is critical to determine the sources of sediment. This short course will highlight the "sediment-fingerprinting approach" for determining sediment sources. The sediment-fingerprinting approach uses the properties of sediment to differentiate between multiple sediment sources by establishing a set of chemical properties (tracers) that uniquely characterize each source in the watershed. Using samples of fluvial sediment (target samples) and comparing them with the source tracers, the major sources of sediment can be identified.

We will discuss all the necessary steps needed to conduct a sediment fingerprinting study, including:

- Identifying sources
- field collection of sources and target sediment
- equipment needed
- lab preparation and analysis
- statistical operations
- influence of grain size and organic content
- uncertainty analysis
- final model answers

The workshop will instruct the use of the downloadable USGS-CAU Sediment Source Assessment Tool (Sed_SAT3). Sed_SAT3 is a program written in C++ that allows the user to step through all the necessary steps to apportion sediment. Sed_SAT3 uses both Bayesian and multivariate statistical approaches. Participants are encouraged to bring laptops (MAC or PC).

INSTRUCTORS:
Dr. Allen Gellis is a Research Geomorphologist with the U.S Geological Survey. He received his Ph.D. from Colorado State University in geology. He has spent his career studying sediment as it relates to land use and climate, and has worked in a variety of geomorphic settings including Puerto Rico, the Southwest, the Midwest, and the Mid-Atlantic. His current research examines sediment budgets with a focus on sediment fingerprinting to determine the sources and ages of fluvial sediment.

Dr. Arash Massoudieh is a Civil and Environmental Engineering professor at the Catholic University of America. He received his Ph.D. from the University of California, Davis. His research is mainly on developing modeling tools for hydrologic and water quality processes in surface waters, soil, and groundwater, focusing on auto-calibration and probabilistic parameter estimation.

SHORT COURSE:
5. HEC-RTS

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
The Hydrologic Engineering Center's Real-Time Simulation (HEC-RTS) program package is a

comprehensive data management as well as hydrologic and hydraulic modeling system for short-term to seasonal water management decisions support. Through HEC-DSS (Data Storage System), HEC-RTS facilitates the real-time use of observed and forecasted precipitation, observed flows and stages, and other meteorological and hydrologic data. HEC-RTS also facilitates the integration of HEC-MetVue (Meteorological Visualization Utility Engine), HEC-HMS (Hydrologic Modeling System) for forecasting flows throughout a watershed, HEC-ResSim (Reservoir System Simulation) for simulating reservoir operations and release decisions, HEC-RAS (River Analysis System) for forecasting river stages and producing flood inundation maps, and HEC-FIA (Flood Impact Analysis) for estimating potential flood impacts on life safety and agricultural and urban infrastructure.

This short course will provide overview presentations on HEC-RTS and its data and modeling

components, including updates on latest versions of the modeling components. The course will also include HEC-RTS live demonstrations of real-time data acquisition, the use of gridded precipitation preprocessor, flow forecasting, reservoir releases determination, and flood inundation map generation for decision support. The demonstration HEC-RTS models and datasets along with walkthrough exercise notes will also be available online for download.

INSTRUCTORS:
Fauwaz Hanbali is a Senior Hydraulic Engineer at the US Army Corps of Engineers Hydrologic Engineering Center (HEC). He has been a member of Water Management Systems Division at HEC for twenty years. Fauwaz is a member of the software development teams for the Corps Water Management System (CWMS) suite of software for real-time decision support and HEC-ResSim software for reservoir system simulation. Fauwaz is also the program manager for the HEC-MetVue software for meteorological data visualization and analysis. Fauwaz specializes in hydrology, river hydraulics, and reservoir system management and has been involved a number of domestic and international water resources management studies. Fauwaz has a Bachelor's degree in Civil Engineering from the University of Maryland and a Master's degree in Hydraulic Engineering from IHE Delft, The Netherlands.
Alex Davis is a Hydraulic Engineer at the US Army Corps of Engineers Hydrologic Engineering Center (HEC). He has been a member of Water Management Systems Division at HEC for three years. Alex is a member of the software development team for the Corps Water Management System (CWMS) suite of software for real-time decision support and HEC-HMS software for hydrologic modeling. Alex has a Bachelor's and Master's degree in Civil and Environmental Engineering from Tennessee Tech University.

Simon Evans is a Senior Hydraulic Engineer at the US Army Corps of Engineers, Hydrologic Engineering Center (HEC). He has been a member of Water Management Systems Division at HEC for one year. Previously he has worked for the US Army Corps of Engineers, Baltimore District in the Water Management Section for five years, and the US Army Corps of Engineers, Los Angeles District Hydrology and Hydraulics Branch for five years. Simon is a member of the software development team for the Corps Water Management System (CWMS) suite of software for real-time decision support, and the technical lead for HEC-FIA. Simon specializes in river hydraulics, hydrology, and reservoir system management. Simon has Bachelor's and Master's degrees in Civil Engineering from the University of California, Los Angeles. He is a registered Civil Engineer in California, and a Certified Floodplain Manager.

SHORT COURSE:
6. Sediment Data Collection Techniques

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
This short course would cover highlights of basic fluvial-sediment concepts, sediment sampler characteristics, and field techniques (including Safety concepts) for sampling with suspended-sediment, bed material, and bedload samplers. The course is designed for those actively engaged in/or supervising individuals engaged in sediment or water-quality data-collection activities, or who plan to become involved in these activities.

AGENDA:
8:00am Introduction
8:15am Sediment Fundamentals
8:45am Types of Samplers
9:00am Collecting suspended-sediment samples
10:00am Break
10:15am Collecting bed material samples
11:00am Collecting bedload samples
Adjourn by Noon

INSTRUCTORS:
Gary Johnson is currently the Operations Coordinator for the USGS Central Midwest Water Science Center. Gary has a BS in General Engineering and a Masters in Public Administration, both from the University of Illinois. Gary has completed a variety of Surface Water quantity, bathymetric, sediment and water quality projects and has a passion for collection and dissemination of high-quality water-resources data. Gary serves as the Course Coordinator of the USGS "Sediment Data Collection Techniques" course, held annually in the Pacific Northwest.

Kurt Spicer is a Supervisory Hydrologic Technician from the Cascades Volcano Observatory in Vancouver, WA. Kurt is well known for his diligent long term monitoring of water and sediment discharge at Mount St. Helens. Kurt serves as the Field Coordinator of the USGS "Sediment Data Collection Techniques" course, held annually in the Pacific Northwest.

Molly Wood is currently the USGS National Sediment Specialist and acting Hydrologic Networks Branch Chief for USGS Headquarters. She provides technical guidance for and leads initiatives to support national sediment and streamflow monitoring

programs and related research. Her scientific work includes the estimation of fluvial sediment transport using surrogate technologies, estimation of reservoir capacity and sustainability, and applications of statistical hydrology. She has provided technical assistance in hydrologic data collection and research to government agencies across the world, including in Iraq, Laos, Chile, and Brazil. She has a B.S. and M.S. in Civil and Environmental Engineering from the University of Tennessee and is a registered Professional Engineer.

Tim Straub is currently the Chief of the Federal Interagency Sedimentation Project (FISP) and Program Manager for the USGS Illinois River Basin Next Generation Water Observing System. In his FISP role, he works to help standardize fluvial sediment science methods and instruments. His previous scientific work includes studies concerning stream-restoration evaluations, dam-removal effects, sediment and geomorphic investigations, hydrologic and hydraulic modeling, and statistical analysis of hydrologic data. He has earned Civil and Environmental Engineering degrees from the University of Illinois and Colorado State University and is a registered Professional Engineer.

SHORT COURSE:
7. Flow Frequency Analysis using Bulletin 17C

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
Flood-frequency analysis of peak streamflow records provides the essential statistical interpretation of hydrologic data for estimating flood risk and for floodplain mapping. This workshop will provide an overview and refresher on flood-frequency analysis of peak streamflow data, as well as introducing methods adopted in the Federal guidelines, Bulletin 17C at https://doi.org/10.3133/tm4B5. These methods include a generalized method-of-moments estimator, the Expected Moments Algorithm (EMA), for dealing with zeroes, low outliers and historical data. Bulletin 17C methods also employ a generalized version of the Grubbs-Beck test (MGB) for the identification of potentially influential low floods (PILFs). Participants will learn about the various methods implemented within Bulletin 17C, how to properly characterize data for inclusion in a Bulletin 17C analysis, and how to interpret Bulletin 17C flood frequency analyses. Recent updates and enhancements to Bulletin 17C will be discussed as well. Software with actual examples from Bulletin 17C will be used. The course will run for a half day.

Software with actual examples from Bulletin 17C will be used. The latest version of HEC-SSP (version 2.3-beta, as of 11 July 2022) can be downloaded here: https://www.hec.usace.army.mil/software/hec-ssp/download.aspx. Bulletin 17C Examples can be found here: https://www.hec.usace.army.mil/confluence/display/SSPExamples/Bulletin+17C+Examples.

USGS PeakFQ software: PeakFQ - Flood-Frequency Analysis (usgs.gov)

INSTRUCTORS:

Mike Bartles, P.E.
Mike is a Senior Hydraulic Engineer at the U.S. Army Corps of Engineers Hydrologic Engineering Center in Davis, CA. He is the team lead for the Hydrologic Engineering Center's Statistical Software Package (HEC-SSP). Mike has been with USACE for 13 years, starting with the Philadelphia District in 2009 and joining HEC in 2015. His specialties are statistical hydrology, hydrologic and hydraulic modeling, snowmelt/accumulation, and real-time flood forecasting. michael.d.bartles@usace.army.mil

Greg Karlovits, P.E., P.H., CFM
Greg is the Senior Technical Specialist for Statistical and Hydrologic Analysis at the US Army Corps of Engineers Hydrologic Engineering Center in Davis, CA. He is the current team lead for the Hydrologic Engineering Center's Hydrologic Modeling System (HMS) software. Greg has been with USACE for 11.5 years, starting with the Rock Island District in 2011, RMC from 2014-2017, and HEC since 2017. His specialties are in statistical analysis, hydrometeorology, hydroclimatology, and hydrologic modeling. gregory.s.karlovits@usace.army.mil

Dan Wagner
Dan Wagner is a hydrologist in the Fayetteville, AR office of the USGS Lower Mississippi-Gulf Water Science Center. Dan started with the USGS in 2006 as a student hydrologic technician and became a hydrologist in 2008. Dan has done a variety of things in his career, including streamgaging, water-quality sampling, hydrographic surveying with sonar and LiDAR, streamflow statistics and trend analysis, and regional flood frequency projects. Currently, Dan works with the USGS Water Mission Area on regional flood skew projects and several USGS water science centers on regional flood frequency projects. dwagner@usgs.gov

Nancy Barth, Ph.D.
Nancy Barth is a Hydrologist with the U.S. Geological Survey (USGS) Dakota Water Science Center in Bismarck, North Dakota. She is currently a co-investigator on a multi-year, multi-phase regional study evaluating potential nonstationarity in annual peak flows and changes in seasonality related to hydroclimatic variability in the Midwest. And she is currently updating at-site flood frequency analysis (FFA) in South Dakota. Previously she worked on studies to update FFA estimates at both gaged and ungaged sites in California and Alaska. She also worked with the USGS Office of Surface Water as a corresponding member of the Hydrologic Frequency Analysis Workgroup (HFAWG) under ACWI's Subcommittee on Hydrology to update the federal guidelines for determining flood frequency estimates for Bulletin 17C. In 2018, she completed her doctoral research at the University of Iowa in Civil and Environmental Engineering focused on improving flood frequency estimates based on the hydrometeorologic processes that drive much of the mixed population of flood flow throughout the western United States. Her doctoral research built upon her work as a hydrologist with the USGS to better understand the complex process-driven flood hydrology found in the WUS. nabarth@usgs.gov.

SHORT COURSE:
8. Introduction to Successful Sediment Transport Modeling

DATE & TIME:

SEDHYD 2023 Short Course Descriptions

Monday, May 8, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
This Workshop will introduce the basic principles of designing a successful sediment transport modeling analysis. It is intended to be a supplement to the panel discussion "**Morphological Modeling**" panel discussion and a complement to the "**SRH-2D sediment modeling**" short course. Participants will be exposed to a wide range of sediment transport modeling applications. The course will discuss the steps necessary in the design of a modeling project: question identification, choice of processes to simulate, limitations of various model types, the role of model zeroing, treatment of depositional features, and review of available models. The importance of understanding model limitations will be emphasized as that is a key to properly designing and interpreting the analysis. Once the model questions are developed and the model selection is complete, we will step participants through the process of completing the study beginning with data collection, proceeding to model setup, model calibration, model simulations, and then uncertainty analysis. The process will be demonstrated using several case studies including degradation downstream of a dam and dam removal.

INSTRUCTORS:
Blair Greimann has 24 years of experience scoping, performing, and reviewing hydraulic and sediment transport analyses in rivers and reservoirs. His primary focus is the analysis of sediment transport resulting from dam removal, river restoration, water diversion, changing dam operations, and management of reservoir sediment. Some of the projects where he has performed a critical role include the San Joaquin River Restoration Program, the Klamath Dam Removal Studies, Matilija Dam Removal, Glen Canyon Long-Term Experimental and Management Plan, Stanislaus Gravel Augmentation, Red Bluff Pumping Plant on the Sacramento River, and Paonia Reservoir Sedimentation Management. In these projects, he assessed the benefits and risks associated with sediment transport in natural systems analyzing such issues as changes to flood inundation, bed and bank erosion, river-bed material, water quality, and riparian vegetation communities. He was the lead developer of the hydraulic and sediment transport model called SRH-1D (Sedimentation and River Hydraulics – One Dimension) and has applied this model to several of the projects listed above. He has been recognized for his outstanding work by being named Reclamation Engineer of the Year in 2007 and receiving the best paper award in the Journal of Hydraulic Research for work related to his Ph.D. research. He enjoys teaching and mentoring and has taught as an adjunct professor for University of Colorado. He has also organized and given short courses related to sediment transport modeling and reservoir sedimentation training for domestic and international engineers.

Peter Wilcock specializes in erosion and sedimentation processes and their application to stream and watershed restoration and management. His research spans grain-scale mechanics, sediment-channel interactions at the reach scale, and the control and management of sedimentation at the watershed scale. Applications include channel restoration, reservoir and channel response to dam removal, and reservoir operations for downstream channel maintenance. He has worked extensively in experimentation, field observation, and computer simulation of sediment systems and has published more than 100 peer-reviewed articles. Dr. Wilcock has provided expert and litigation consultation to industry and government agencies and has served on many academic and government panels, including three National Research Council committees, one of which he chaired. After receiving his PhD in Earth Science from MIT in 1987, he served on the faculty of the Whiting School of Engineering at the Johns Hopkins University for 27 years and then joined Utah State University to serve as Head of the Watershed Sciences Department in the Quinney College of Natural Resources from 2014 to 2020. Prof. Wilcock is a Fellow of the American Geophysical Union and received the Hans Albert Einstein Award from the American Society of Civil Engineers for outstanding contributions to the understanding of sediment transport in gravel-bed rivers.

SHORT COURSE:
9. Sediment Transport Modeling with SRH-2D: Riverine and Watershed Scale

DATE & TIME:
Monday, May 8, 2023 from 1:00 pm to 5:00 pm

DESCRIPTION:
SRH-2D is a two-dimensional (2D) depth-integrated flow and sediment transport model developed by the Bureau of Reclamation and distributed for general use since 2006. SRH-2D has been applied successfully to an extensive number of engineering projects. Since 2013, FHWA has partnered with Reclamation to further develop and apply SRH-2D for detailed transportation hydraulic analysis and design, including bridge scour evaluation and sediment transport analysis. Recently, SRH-2D has also been extended to erosion and sediment delivery modeling on watersheds.

In this course, key features of SRH-2D will be highlighted, with an emphasis on new applications in riverine and watershed-scale sediment transport simulation, and a training on SRH-2D practical use. Relevant manuals/publications and the latest version will be distributed at the class. A free community version of the SMS interface will also be introduced. An outline of the topics is as follows:

- Introduction – General introduction of SRH-2D
- New features
- Model setup and data requirements o Use of SMS Community Version
- Input data needs
- Modeling steps
- Sediment transport modeling case studies in rivers o Bridge scour analysis
- Interesting case studies (instream structure, bend scour, contract scour, etc.)
- Watershed erosion and sediment delivery modeling o A field case is used to illustrate the use of the model

The learning outcome: Attendees will learn the following: (1) How to use community SMS to generate a 2D mesh and run SRH-2D; (2) Sediment modeling input data needs and modeling steps; (3) Relative importance of model input data; (4) Complex sediment cases that may or may not be simulated with a 2D model, and (5) Erosion and sediment delivery modeling on a watershed.

SEDHYD 2023 Short Course Descriptions

INSTRUCTORS:
Yong Lai is a specialist hydraulic engineer at the Technical Service Center, U.S. Bureau of Reclamation, Denver, Colorado. Dr. Lai obtained his Ph.D. in 1990 from Arizona State University and has since been involved in a wide range of research, development and engineering projects. His professional career includes working for a consulting company, a research institute, the University of Iowa, and the federal government. Dr. Lai has published more than 60 scientific journal papers and numerous conference papers in diverse engineering areas. He is the lead developer of SRH-2D - a 2D flow and sediment transport model, and U2RANS - a 3D CFD model. Dr. Lai currently serves as an associate editor of the ASCE Journal of Hydraulic Engineering and a member of the Scientific Advisory Board for several conferences and open journals. He regularly provides short courses on hydraulic and sediment modeling.

Scott Hogan has spent more than 30-years working in the field of river engineering hydraulics. For the past 16 years, he has worked with the US Federal Highway Administration (FHWA) and was a consulting engineer prior to that. He graduated from Colorado State University with a B.S. and M.S. in Civil Engineering. Mr. Hogan specializes in bridge hydraulic modeling and design, scour analyses, sediment transport, counter measure design, and floodplain analysis. For more than 25 years he has been an instructor for several hydraulics training courses through FHWA National Highway Institute (NHI). He has a sincere passion for hydraulic engineering and advancing the state of our practice.

SHORT COURSE:
10. New Feature and Capabilities in HEC-RAS 6

DATE & TIME:
Monday, May 8, 2023 from 1:00 pm to 5:00 pm

DESCRIPTION:
This half-day short course will cover many of the new feature that have been added to HEC-RAS. These new capabilities will be introduced, explained, and an example application will walk participants through the use of the features. Instruction on modeling bridges in a 2D flow area and using spatially varied precipitation modeling with a 2D mesh will be provided. Further discussion will cover the acquisition and use of elevation data in RAS Mapper, using initial conditions for 2D simulations, referencing observed data, and inundation mapping options. Participants will be encouraged to interact with the instructors through questions and answers. As time allows, addition capabilities and future development activities will be discussed.

INSTRUCTORS:
Cameron Ackerman has been working at HEC for more than 25 years. He started his career by bringing GIS capabilities to surface water modeling and has been working towards HEC-RAS' success ever since as the development lead for RAS Mapper. His expertise is in dam breach modeling and river analysis studies and developing GIS-based flood warning systems. Cameron enjoys providing guidance, technical support, and instruction throughout the world with training in more than a dozen countries. Cameron received his BS and MS from the University of California, Davis in Civil and Environmental Engineering. He is a registered Professional Engineer in the state of California.

Mark Jensen is the lead programmer for HEC-RAS. Having worked on HEC-RAS for more than 30 years, Mark's technical expertise in river hydraulics and numerical methods have shaped what HEC-RAS is today. While Mark is the HEC-RAS software Technical Lead, he is also the lead for the HEC-RAS water quality and temperature modeling. Mark received his BS and MS from the University of California, Davis in Civil and Environmental Engineering.

Eric Tichansky has worked at HEC for 6 years after having worked for the Tulsa District for 6 years. While at HEC, specializes in hydrologic and hydraulic modeling, real-time flood forecasting with CWMS, and consequences estimation (as the previous HEC-FIA application lead). As the newest member to the HEC-RAS team, Eric is focus on rain-on-mesh analysis and providing technical support, education, and guidance to the field. Eric has a BS from the University of Oklahoma in Environmental Engineering. He is a registered Professional Engineer in Oklahoma and a Certified Floodplain Manager.

SHORT COURSE:
11. An Overview of Selected Sediment Surrogate Techniques

DATE & TIME:
Monday, May 8, 2023 from 1:00 pm to 5:00 pm

DESCRIPTION:
This short course would cover highlights of selected sediment surrogate techniques being used or funded for evaluation by the Federal Interagency Sedimentation Project and others. Instructors will present the operational status, use cases, procedural highlights, and limitations of each technique. The short course agenda may change but is expected to include:

AGENDA:
1:00 pm Introduction
1:15 pm Surrogates for suspended sediment
2:45 pm Break
3:00 pm Surrogates for bedload sediment
4:30 pm Open Q&A discussion with participants on future research needs in sediment surrogates
5:00 pm Adjourn

INSTRUCTORS:
Molly Wood is currently the USGS National Sediment Specialist and acting Hydrologic Networks Branch Chief for USGS Headquarters. She provides technical guidance for and leads initiatives to support national sediment and streamflow monitoring programs and related research. Her scientific work includes the estimation of fluvial sediment transport using surrogate technologies,

estimation of reservoir capacity and sustainability, and applications of statistical hydrology. She has provided technical assistance in hydrologic data collection and research to government agencies across the world, including in Iraq, Laos, Chile, and Brazil. She has a B.S. and M.S. in Civil and Environmental Engineering from the University of Tennessee and is a registered Professional Engineer.

Tim Straub is currently the Chief of the Federal Interagency Sedimentation Project (FISP) and Program Manager for the USGS Illinois River Basin Next Generation Water Observing System. In his FISP role, he works to help standardize fluvial sediment science methods and instruments. His previous scientific work includes studies concerning stream-restoration evaluations, dam-removal effects, sediment and geomorphic investigations, hydrologic and hydraulic modeling, and statistical analysis of hydrologic data. He has earned Civil and Environmental Engineering degrees from the University of Illinois and Colorado State University and is a registered Professional Engineer.

SHORT COURSE: (NOTE: THIS WORK SHOP WAS CANCELLED DUE TO A HEALTH EMERGENCY)
12. Sediment Transport in Stream Channel Design

DATE & TIME:
Monday, May 8, 2023 from 1:00 pm to 5:00 pm

DESCRIPTION:
It is time for stream channel design to move beyond a template approach to a method that explicitly uses water and sediment supply in a forward design process that incorporates uncertainty, supports alternatives analysis, and accommodates traditional empirical relations in an appropriate supporting role. This short course presents a design approach that begins with specification of desired channel dynamics and then uses estimates of water and sediment supply to explore design alternatives. The method builds on the classic definitions of threshold and alluvial channels. A threshold channel is one for which the bed material is immobile at a design discharge. An alluvial channel is one for which transport capacity is balanced against the rate and grain size of sediment supply. A third type of channel is defined and combines the first two – over-capacity threshold – in which transport capacity exceeds supply but design flows do not exceed threshold limits for channel erosion. This type of channel is more common than often realized, is unintentionally designed in many cases, and offers both advantages and disadvantages that can only be weighed if the design objectives are specifically defined. Uncertainty in water and sediment supply is explicitly included in assessing channel performance. A risk framework is developed for threshold channels and alluvial channels are evaluated in terms of the probability of undesirable aggradation or degradation. At small sediment supply rates, channel performance is relatively insensitive to uncertainty in sediment supply and principles of flow competence may be used to design a threshold-like channel. At large sediment supply rates, the potential for storing or evacuating channel-changing quantities of sediment is much larger. A computational tool will be presented that assists in estimating the sensitivity of channel performance to uncertainty in sediment supply. The tool includes river state diagrams useful for reconnaissance evaluation and channel stability diagrams useful at the planning stage.

The method presented includes a number of important components: (i) it is based on specified channel behavior, such that rates of water and sediment supply and their uncertainty can be directly incorporated in the design process, (ii) it accommodates traditional empirical observations of channel geometry in an appropriate supporting role, (iii) it uses a surface-based mixed-size sediment transport relation that accommodates transient conditions, and (iv) it identifies design channel geometry using the full range of water and sediment supply, rather than a single design discharge. At last, we can move beyond bankfull in designing channels!
Reading materials will be distributed in advance of the course. Spreadsheet models will be made available and used in the short course. Students should bring their own laptops for use during the workshop.

INSTRUCTOR:
Prof. Peter Wilcock specializes in erosion and sedimentation processes and their application to stream and watershed restoration and management. His research spans grain-scale mechanics,

sediment-channel interactions at the reach scale, and the control and management of sedimentation at the watershed scale. Applications include channel restoration, reservoir and channel response to dam removal, and reservoir operations for downstream channel maintenance. He has worked extensively in experimentation, field observation, and computer simulation of sediment systems and has published more than 100 peer-reviewed articles. Dr. Wilcock has provided expert and litigation consultation to industry and government agencies and has served on many academic and government panels, including three National Research Council committees, one of which he chaired. After receiving his PhD in Earth Science from MIT in 1987, he served on the faculty of the Whiting School of Engineering at the Johns Hopkins University for 27 years and then joined Utah State University to serve as Head of the Watershed Sciences Department in the Quinney College of Natural Resources from 2014 to 2020. Prof. Wilcock is a Fellow of the American Geophysical Union and received the Hans Albert Einstein Award from the American Society of Civil Engineers for outstanding contributions to the understanding of sediment transport in gravel-bed rivers.

SHORT COURSE:
13. Debris Flow Analysis with HEC-HMS and HEC-RAS

DATE & TIME:
Monday, May 8, 2023 from 1:00 pm to 5:00 pm

DESCRIPTION:
The U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center (HEC) has added debris yield and flow capabilities to its popular hydrologic and hydraulic software. HEC's Hydrologic Modeling System (HEC-HMS) can now compute debris yield and the River Analysis System (HEC-RAS) can simulate the non-Newtonian fluid physics of mud and debris flows associated with post-wildfire events and mine-tailing dam breaches. A four-hour training is being offered that covers hands on application of debris simulation

capabilities in both HEC-HMS and HEC-RAS. The course will be delivered in two parts, each two-hours in length with breaks integrated as appropriate.

Part One: Debris Yield Analysis Using HEC-HMS
HEC-HMS includes five debris yield methods - LA Debris Method EQ.1, LA Debris Method EQ 2-5, Multi-Sequence Debris Prediction Method (MSDPM), U.S. Geological Survey (USGS) Long-Term Debris Model, and USGS Emergency Assessment Debris Model - that simulate the post-wildfire debris yield processes from burned watershed areas. The overall goal of Part 1 of the short course is to use the debris yield methods in HEC-HMS for debris yield calculation from burned watershed areas. The first objective is to understand sediment and debris yield process and the empirical debris yield equations implemented in HEC-HMS (Lecture). The second objective is to develop debris yield model including parameter estimation and calibration using HEC-HMS (Hand-on workshop).

Part Two: Non-Newtonian Mud and Debris Transport Using HEC-RAS
Part Two will use debris yield results from HEC-HMS as boundary conditions for the mud- and debris-flow simulations in HEC-RAS. This session will introduce the non-Newtonian physics that HEC-RAS uses to simulate these high-concentration events and go through the interface and input parameters required to model these flows in HEC-RAS. Participants will learn how to parameterize an HEC-RAS model to compute the effects of post-wildfire or mine-tailing debris on flood depth, flood warning time, and mapping the debris inundation floodplain.

Training participants will need to download the latest versions of HEC-RAS and HEC-HMS at https://www.hec.usace.army.mil/software/. Other training materials will be available about one week before the scheduled training. Please contact Jay Pak at jay.h.pak@usace.army.mil with HEC-HMS, debris yield, and post-fire hydrology questions and Stan Gibson at stanford.gibson@usace.army.mil with HEC-RAS and Non-Newtonian mud and debris transport questions.

INSTRUCTORS:
Jang (Jay) Pak, Ph.D. has worked at USACE for more than 20 years, and is currently a senior research hydraulic engineer in the Hydrology & Statistics Division at the HEC. Previously he has worked at the Far East and Los Angeles USACE Districts as a hydraulic engineer and supervisory civil engineer. His areas of expertise include surface water hydrology, post-fire hydrology, river hydraulics, debris flow analysis, land surface erosion and debris yield, and damage reduction and impact analysis. He also has expertise in geology, geotechnical engineering, coastal engineering, and project/program management. Dr. Pak received his Ph.D. and Master's degrees in Civil and Environmental Engineering from the University of Southern California. His Ph.D. research focus involved real-time debris prediction models incorporating wildfire and subsequent storm events. He is a registered civil engineer in the state of California.

Stanford Gibson, Ph.D. is the sediment specialist at the Hydrologic Engineering Center (HEC) where he has worked for 20 years. He is responsible for the sediment transport capabilities in HEC-RAS. His areas of expertise include sediment modeling, debris flow, sustainable reservoir sediment-management analysis, and dam removal simulations. Dr. Gibson also regularly applies sediment models to support ecosystem restoration, flood damage reduction, and navigation projects, and has taught hydraulics and sediment transport in more than 10 countries. He earned a Ph.D. in Civil and Environmental Engineering from UC Davis, and a Master's degree in Geotechnical Engineering, Restoration Ecology, and Theology. Within the last five years, Dr, Gibson received the USACE Engineers Hydrology, Hydraulics, and Coastal Practitioner of the Year award, and was recognized as the Hydrologic Engineering Center and Institute for Water Resources Employee of the Year and for research of the year for the Flood and Coastal and Regional Sediment Management programs in USACE. Dr. Gibson has published more than 15 papers in peer reviewed journals and more than 50 other publications. He sometimes posts YouTube videos on sediment modeling topics: https://www.youtube.com/user/stanfordgibson.

SHORT COURSE:
14. Predicting fish response to infrastructure and management in different environments: the Eulerian-Lagrangian-agent Method (ELAM)

DATE & TIME:
Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
This half-day short course will introduce participants to the basic capabilities and use of the USACE ERDC-EL Eulerian-Lagrangian-agent Method (ELAM) model for describing past (hindcasting) and predicting future fish response to infrastructure and management design alternatives. ELAM model development dates back nearly 25 years (August 1998) and has leveraged over $65 million dollars worth of river and fish movement/passage data near infrastructure. The model is not perfect, and limitations will be discussed. However, the ELAM model has achieved unique success in predicting future 3-D/2-D fish movement, passage, and entrainment patterns. Specifically, the ELAM model has accurately predicted fish patterns prior to the availability of field data for specific river and infrastructure operating conditions. Further, the ELAM has performed well on out-of-sample data where the future condition was different from the calibration conditions. ELAM applications to date include predicting fish passage at Columbia and Snake River Dams, where model output was part of the engineering design process for both Federal and Public Utility District hydropower facilities. The ELAM is also part of the California Department of Water Resources design process for fish guidance and entrainment at tidal river junctions within the Bay-Delta. Emerging applications include upstream-migrating fishes in the Laurentian Great Lakes.

Participants will gain a sense of the growing ELAM application portfolio and what is involved in applying the model to different river contexts. For the workshop, participants do not need to be able to run the ELAM model to gain useful information about applying the tool to their own projects. The ELAM model is not a GUI-based support tool, the ability to write computer source code in C++ and Fortran90 is (as of the current version) a prerequisite. However, participants will gain a sense of the type of applications easily done in-house, as part of the growing user community, or by a growing list of experienced ELAM users.

An executable form of the ELAM model will be made available to participants before the workshop. To run the ELAM model at the workshop, one will need a laptop with a specific version of the latest macOS or Windows operating system, which will be determined

weeks before the workshop. It is anticipated that the prerequisite of a certain operating system will hinder many participants from being able to run simulations on the day of the workshop; for this reason, the workshop will mostly focus on describing applications and how to make best use of the self-guided user manual. Participants interested after the workshop can contact Dr. R. Andrew Goodwin (Andy.Goodwin@usace.army.mil) for the underlying source code in concert with existing ERDC-EL distribution policies. To run the ELAM model at the workshop, participants will need the following software installed: www.tecplot.com/products/tecplot-360/. A 3-day free trial (full version) is available via the Tecplot website, and a 30-day free trial is available by contacting San Lian (email: s.lian@tecplot.com).

Participants will leave the course with enough understanding of the technology to begin the process of applying the ELAM model to their own work.

INSTRUCTOR:
Dr. R. Andrew Goodwin has worked at USACE for more than 20 years stationed in Portland, Oregon, and is currently a senior research environmental engineer in the Environmental Processes & Engineering Division, Environmental Laboratory of the U.S. Army Engineer Research & Development Center. His areas of expertise include modeling (hindcasting, predicting) animal movement behavior near infrastructure, particularly fish in rivers, reservoirs, and estuaries. Dr. Goodwin received his Ph.D. and M.S. degrees in Civil and Environmental Engineering (Environmental Systems Engineering) from Cornell University and a B.S. in Civil Engineering from Virginia Tech. His Ph.D. research focus involved modeling fish cognition and sensory ecology in relation to 3-D river hydrodynamic models. Dr. Goodwin's work with USACE has been published in peer-review scientific journals such as *Ecological Modelling*, *Journal of Theoretical Biology*, *BioScience*, and the highly prestigious *Proceedings of the National Academy of Sciences of the United States of America*. He is a registered civil engineer in the State of Oregon.

SHORT COURSE:
15. CE-QUAL-W2 Hydrodynamic and Water Quality Modeling in Support of Reservoir Operations

DATE & TIME:
Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
CE-QUAL-W2 is a water quality and hydrodynamic model in 2D (longitudinal-vertical) for rivers, estuaries, lakes, reservoirs and river basin systems. W2 models basic eutrophication processes such as temperature-nutrient-algae-dissolved oxygen-organic matter and sediment relationships. The current model release is Version 4.5. CE-QUAL-W2 can be freely accessed and downloaded from the Portland State University website: http://www.ce.pdx.edu/w2/.

Topics to be covered include an overview of CE-QUAL-W2 model; hydrodynamics and transport modeling; water quality capabilities in CE-QUAL-W2; water quality model data requirements and inputs; setting up a water quality model for simulating water temperature, general constituents, and nutrients; water quality model calibration and sensitivity analysis.

To provide attendees with the knowledge to effectively utilize the latest CE-QUAL-W2 model to perform two-dimensional water quality modeling and analysis in support of reservoir and riverine water quality, environmental impact assessment, and ecosystem restoration projects. The workshop is designed for practicing engineers and scientists in consulting engineering, local, state, and federal agencies, research organizations, and academic institutions. Having completed this course, attendees will gain a working knowledge of the CE-QUAL-W2 water quality model. Through a combination of lectures and hands-on exercises, attendees will learn to use CE-QUAL-W2 to set up, calibrate, and validate a river water quality model and perform an analysis of water temperature, general constituents, and eutrophication.

Attendees are encouraged to bring their own notebook computer. In addition participants should have administrator privileges on their computer in order to install the software. HOWEVER, participants are welcome to attend the workshop without a computer with the understanding that one will not be provided.

Schedule**:** (Subject to modification)

- Welcome and introductions (15 minutes)
- Overview of latest CE-QUAL-W2 (45 minutes)
- Break (10 minutes)
- CE-QUAL-W2 data requirements, model development, demonstration (60 minutes)
- Break (10 minutes)
- CE-QUAL-W2 case studies – modeling water quality management and reservoir operations (70 minutes)

INSTRUCTORS:
Dr. Zhonglong Zhang has a PhD in Biosystems Engineering from Clemson University. He is a Research Professor and Principal Investigator of Civil and Environmental Engineering at

Portland State University. He has been working side-by-side with the U.S. Army Corps of Engineers ERDC and HEC team for the development of watershed, riparian vegetation, water quality, and multimedia environmental modeling capabilities and software. He is the primary author of water quality modules that are currently coupled with HEC-RAS, HEC-ResSim as a companion water quality model. He isa major contributor of the latest version ofCE-QUAL-W2model.Hehas conducted a wide range of hydraulic and water quality modeling applications for many of the major US river systems. Additionally, he has provided modeling review and technical support for several districts of the U.S. Army Corps of Engineers. Currently he serves as the Vice President for Academic Affairs of the American Institute of Hydrology (AIH).

Dr. Todd E. Steissberg is a Research Environmental Engineer at the Environmental Laboratory,

U.S. Army Engineer Research and Development Center (ERDC). He and his team develop and apply water quality and environmental systems models for rivers, reservoirs, and watersheds. The objective of his research is to provide interdisciplinary teams with the tools and methods needed to perform integrated watershed-scale environmental impact assessments, improve real-time water quality management, and design and implement ecosystem restoration projects that incorporate natural and nature-based features to enhance the health and resiliency of ecosystems and communities. Dr. Steissberg obtained his B.S. in Civil Engineering from Washington State University, where he researched air pollution chemistry and transport processes and aquatic ecosystem restoration. He obtained his M.S. and Ph.D. in Civil and Environmental Engineering from University of California, Davis, while serving as a NASA Earth System Science fellow at NASA/JPL, researching satellite remote sensing, physical limnology, and water quality. As a Postdoctoral Researcher at the Tahoe Environmental Research Center, John Muir Institute of the Environment, University of California, Davis between 2008 and 2010, he developed methods to characterize nearshore and offshore water quality and its spatial-temporal variability using satellite and field measurements. Dr. Steissberg lead development and application of water quality models and geospatial tools as a Senior Research Hydraulic Engineer at the U.S. Army Corps of Engineers Hydrologic Engineering Center (USACE-HEC) between 2008 and 2019. In 2019, he transitioned to ERDC to continue his research, serve as a water quality expert for USACE, and build a team of researchers to address complex issues in water quality and water resource modeling, ecosystem restoration, and environmental resiliency and adaptation of freshwater rand coastal ecosystems, civil works infrastructure, and military installations under the threat of climate change.Dr. Steissberg is the lead developer of ERDC's CE-QUAL-W2 model and the Corps Library for the Environmental Analysis and Restoration of Watersheds (Clear Water)and continues to lead water quality capability development for the HEC models(HEC-RAS, HEC-ResSim, and HEC-HMS) and the Gridded Surface Subsurface Hydrologic Analysis (GSSSHA) program.

SHORT COURSE:
16. Natural Infrastructure Design for Riverine Environments

DATE & TIME:
Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
Natural infrastructure generally involves a family of infrastructure planning and design approaches that emphasize the need to expand the scope of benefits and reduce unintentional costs with a particular focus on social and environmental outcomes. These holistic management actions go by many names, including nature-based solutions, natural and nature-based features, and Engineering With Nature. The river engineering community has long embraced many of these practices, although the science and practice of natural infrastructure design has grown dramatically in recent years. This short course seeks to generally advance attendees' knowledge of Engineering With Nature® practice in rivers with the following specific objectives:

• Improve understanding of how conventional infrastructure and natural infrastructure can be integrated to do the right project, and do the project right;
• Familiarize participants with recent guidelines on natural infrastructure including the USACE International Guidelines on Natural and Nature-based Features;
• Expose participants to riverine case studies to improve technical understanding of natural infrastructure projects, processes, and benefits; and
• Build awareness of opportunities for expanding acceptance and deployment of natural infrastructure.

INSTRUCTORS:
Kyle McKay is a research civil engineer with the U.S. Army Engineer Research and Development Center (ERDC) Environmental Laboratory (EL). He received a B.S. in Environmental Engineering from Colorado State University, an M.S. in Civil Engineering from University of Illinois Urbana-Champaign, and a Ph.D. at the University of Georgia's Odum School of Ecology. His research focuses broadly on examining ecological effects of water resources infrastructure with applications related to urban ecosystem restoration, ecological models, dam operations and decommissioning, and flood risk management. He is stationed in New York City to facilitate cooperative research between the ERDC, local U.S. Army Corps of Engineers offices, the City University of New York, and other local partners. He is adjunct faculty at the University of Georgia and Brooklyn College and is registered as a Professional Engineer in the State of Georgia.

Edward Brauer is a senior hydraulic engineer in the USACE St. Louis District (MVS) and regional technical specialist in river engineering for the Mississippi Valley Division. He has 19 years of project experience, which includes navigation; environmental restoration; research on river-training structures, including physical effects and environmental impacts; sediment transport; geomorphology; field methods; and lock design on rivers within the U.S., South America, and Europe. He has developed and led classes on shallow draft navigation and river-training-structure design and construction (including EWN topics) for engineers in the U.S. and Brazil. He is a member of the USACE River Engineering Committee, the chair of the River Engineering Working Group, the secretary of the World Association for Waterborne Transport Infrastructure (PIANC) Environmental Commission, and an adjunct professor at St. Louis University.

Dr. Brian Bledsoe is a Georgia Athletic Association Distinguished Professor in the College of Engineering at the University of Georgia. Brian has over 25 years of experience as a civil and environmental engineer, hydrologist, and environmental scientist in the private and public sectors. Before entering the professorate, he worked as a consulting engineer and surveyor, and for the State of North Carolina as a watershed restoration specialist and nonpoint source program coordinator. Brian's research is focused on the interface of engineering, hydrology, and ecology with an emphasis on water quality, stormwater, flood hazards, infrastructure, and restoration of river and wetland ecosystems. He received a National Science Foundation CAREER Award in 2006, served as a Fulbright Scholar in Chile in 2008, and is currently president of the American Ecological Engineering Society. Brian's advisory activities include the Everglades and Louisiana Coastal Area restoration efforts, the Platte River and San Juan River Recovery Implementation Programs, the Environmental Protection Agency Environmental Monitoring and Assessment Program, Engineers Without Borders, and collaborative water planning and management with numerous municipal, industrial, and agricultural partners.

Aubrey Harris is an engineer in the US Army Corps of Engineers, Albuquerque District, Hydraulics and Hydrology Division. Her projects pertain to habitat restoration and infrastructure issues in the Middle Rio Grande, with expanding interest to watersheds in the Southwestern United States. She uses spatial analysis and hydraulic engineering to research and fulfill various and competing water systems concerns. She received a B.S. in Biological and Agricultural Engineering from Texas A&M University, an M.S. in Civil Engineering from West Virginia University, and a Ph.D. at the University of New Mexico. She is registered as a Professional Engineer in the State of New Mexico.

SHORT COURSE:
17. Data driven support of resilience decision making: US Army Corps of Engineers climate preparedness tools, data, and approaches

DATE & TIME:
Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
An overarching objective of the U.S. Army Corps of Engineers (USACE) is to continuously evaluate and anticipate vulnerabilities, risks, and resilience of the nation's water resource infrastructure for the many purposes it serves. Evidence of non-stationarities in the observed records that are the basis for design and water management decisions is increasing, heightening the necessity for incorporating projections of future hydroclimatic conditions into decision making.

Over the past-decade the U.S. Army Corps of Engineers has invested in the development of datasets, analytical tools, and technical guidance for incorporating the effects of climate change into decision making. The datasets include ensembles of climate and hydrological projections available for CONUS, Alaska, and Hawaii. A suite of publicly available web applications facilitate analysis of historical observationally derived and projected hydroclimatic variables. These web applications include a toolbox of statistical capabilities to support timeseries and non-stationarity analyses, a web platform for evaluating observed and projected sea level rise, and a web platform for analyzing projections of precipitation, temperature, and streamflow.

This proposed short course will include:

1) An overview of USACE climate policy and technical guidance
2) A theoretical background of the datasets and tools maintained by USACE supporting climate resilience decision making
3) Hands on applications of publicly available resources, including example interpretations

INSTRUCTORS:
Will Veatch, PhD PH Acting lead of USACE Climate Preparedness and Resilience Community of Practice USACE Headquarters
Will Veatch is a Hydrologist with twelve years' experience, with the New Orleans District and more recently USACE Headquarters. He served in the Water Management Section of the Hydrology and Hydraulics Branch of the New Orleans District, and was also a Regional Technical Specialist for Climate Change Adaptation for the Mississippi Valley Division. Since February 2021, he has been the acting lead for the USACE Climate Preparedness and Resilience Community of Practice. Mr. Veatch holds a BA degree in Environmental Studies (Hydrology focus) from the University of Colorado and an MS degree in Hydrology from the University of Arizona. He completed a PhD at the University of Iowa in fall of 2022. He is a registered Professional Hydrologist with the American Institute of Hydrology.

Chris Frans, PhD PE USACE Climate Preparedness and Resilience Community of Practice Subject Matter Expert, USACE Seattle District. Chris has been a civil engineer with USACE Seattle District since 2015. Chris is a regional technical specialist for hydrology and climate change for the Northwest and leads multiple climate change efforts for the Columbia River Reservoir system. Chris also serves as a national subject matter expert assisting with the conception and review of climate change applications, oversight of research and development conducted by external contractors, and developing technical guidance. He is currently serving a detail for USACE HQ as a Senior Policy Advisor. Prior to joining USACE Chris completed a PhD in Civil Engineering at the University of Washington with a dissertation focused on modeling the effects of climate change on water resources in mountainous regions. He is a registered Professional Engineer in the State of Delaware.

Potential Instructors:

Brantley Thames, PE USACE Climate Preparedness and Resilience Community of Practice National Policy Advisor: Climate and Military Programs, USACE Louisville District

Chanel Mueller, PE USACE Climate Preparedness and Resilience Community of Practice Subject Matter Expert, USACE Saint Paul District

Arianne Pinson, PhD USACE Climate Preparedness and Resilience Community of Practice Subject Matter Expert, USACE Albuquerque District

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SHORT COURSE:
18. Risk and Uncertainty Principles for Flood Control Projects

DATE & TIME:
Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
In the 1990's, the U.S. Army Corps of Engineers, the primary custodians of the U.S. river systems, decided that future flood control projects would be designed based upon Risk and Uncertainty principles (R&U). Although R&U had been utilized in other industries, this was the first time it was to be applied to water resources projects on such a grand scale. This workshop will present the concept of uncertainty (both in nature and in the tools that are used by water resources engineers), principles of R&U in an easily understandable

manner and how they are applied to flood control design. It will also explore risk, uncertainty, and probabilistic approaches for hydrologic sciences and engineering.

Upon completion of this workshop, you will be able to:
• Determine the differences between the types of uncertainties
• Identify how R&U is used in water resources projects and specifically levee design
• Understand how PDFs are transformed to CDFs and how they are used in R&U analysis
• Comprehend how uncertainties in hydrology and hydraulics are interrelated

Benefits:
• Distinguish between natural and human induced uncertainty
• Find out how FEMA and the U.S. Army Corps of Engineers view R&U analysis
• Discover the sources of uncertainty and how they affect risk
• Ascertain the benefits of R&U analysis versus the traditional deterministic methods
• See how to define uncertainty in hydrology and hydraulics

Outline:
• Definitions of risk and uncertainty
• Relationship between risk and uncertainty
• Types of uncertainty
• Definitions used in uncertainty analysis
• The Monte Carlo method
• What are PDFs and CDFs
• How is R&U used in water resources
• Uncertainty in hydrology
• Uncertainty in hydraulics
• Applications of R&U to levee design and the reason

INSTRUCTOR:
David T. Williams, Ph.D., P.E., P.H., CPESC, D.WRE, F.ASCE, CFM is President of David T. Williams and Associates. A registered professional engineer in 11 states, Dr. David T. Williams has a variety of work experience which includes National Technical Director for Water Resources for PBS&J (now Atkins) and HDR, co-founder and President of WEST Consultants (a

nationally recognized water resources engineering firm), the U.S. Army Corps of Engineers (USACE), and adjunct professor at San Diego State University. His professional experience includes being an Airborne Combat Engineer with the 7th Special Forces Group (Green Berets), over 18 years as a hydraulic engineer with the USACE at the Waterways Experiment Station (WES, now ERDC) in Vicksburg, MS, both the Nashville and Baltimore Districts, and the Hydrologic Engineering Center (HEC) in Davis, CA. While at WES, Dr. Williams worked on national research applications of sediment transport in rivers and reservoirs and the solution of unusual hydraulic and sediment related problems using computer models and state-of-the-art techniques. During the 1970's, Dr. Williams helped in the development of spatial data management techniques and evaluation of the economic benefits of flood control projects while at HEC which were subsequently used on a national basis. He has presented short courses throughout the U.S. and overseas for the American Society of Civil Engineers (ASCE) and other professional and public organizations such as ASFPM and FMA on computer training using HEC-2, HEC-RAS, HEC-HMS, Bridge Scour and HEC-6 in addition to courses on channel toe protection design, sediment transport, stream restoration, fluvial geomorphology and streambank protection. His national society activities have included past chairs of the ASCE/EWRI Committees on Sedimentation, Computational Hydraulics, Probabilistic Approaches and Stream Restoration as well as past President of the International Erosion Control Association (IECA). He is a registered Professional Hydrologist (PH), a Certified Floodplain Manager (CFM), a Diplomate of the American Academy of Water Resources Engineers (D.WRE) and a Fellow and Life Member of ASCE.

David T. Williams and Associates
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SHORT COURSE:
19. Reservoir Sedimentation Monitoring and Prediction

DATE & TIME:
Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:
All reservoirs face the threat of sedimentation. To transition from the traditional "life of reservoir" to a "sustainable management" paradigm requires information on the rate of capacity loss, the consequences of that loss, and the ability to predict how rapidly those consequences will play out under No Action vs. Management Scenarios. Long-term prediction requires key types of monitoring data to develop a reliable calibrated sediment transport model. This short course outlines cost-effective methods to collect needed field data, formats for data display to help identify and understand key sedimentation processes, and demonstrates how these data are then used in the calibration of transport models that may be used to simulate 100+ years of sediment loading on a reservoir. Examples are also given showing how these data can help identify appropriate management alternatives for model testing. An example is presented using the SRH-1D model and physical modeling, but the data collection and calibration approaches apply equally to all types of modeling

software. The presenters have decades of experience with reservoir monitoring and predictive modeling at multiple existing and proposed reservoirs in a wide range of environments, including Himalayan and Andean reservoirs with extreme sediment loads.

INSTRUCTORS:

Dr. Gregory Morris is a world-class professional engineer with over 40 years of experience, working on design problems and lecturing in over 30 countries. Dr. Morris is co-author of the Reservoir Sedimentation Handbook and numerous peer-reviewed publications. He seeks to make the water resources community more aware of cost-effective design and operational practices that can sustain operation of critical reservoir infrastructure.

Juan Portalatín

SHORT COURSE:

20. Fluvial Geomorphic Processes, Hazards, and Opportunities in Stream Corridors

DATE & TIME:

Friday, May 12, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:

Streams are not lines, they are corridors! Stream corridors are naturally dynamic environments that bring together physical, biological, and chemical processes all while supporting a host of societal and ecological benefits. When streams and floodplains are treated as static lines on the landscape, stream health declines and risk to human-made infrastructure increases. Providing streams the space they need to accommodate and facilitate natural processes and functions is becoming a central tenet in land, water, and floodplain management practices. But how do we define the stream corridor and effectively communicate the importance of protecting and restoring the processes that define them? What tools are commonly used to protect and restore stream corridors and how well do they really accomplish this? How do we strategically focus watershed and community-level planning to protect stream corridor functions given limited funding and time?

Participants will be introduced to stream corridor processes (physical and biological) and the various ways of defining them. You will explore more and less compatible management practices and opportunities within stream corridors. Participants will identify and understand the fundamental processes and components of Fluvial Hazard Zone maps and how the FHZ Mapping Program can be applied to manage the stream corridors under their purview.

Anyone interested in stream corridors and functional floodplains—ecological, regulatory, and geomorphic. No prerequisites necessary! This includes (but is not limited to) municipal planners and staff or managers in public works, floodplains and stormwater departments; consultants; and state or federal agency staff with purview over stream corridor regulation, projects, permitting, or other forms of stream management.

INSTRUCTOR:

Joel Sholtes, PhD, PE, teaches civil engineering specializing in water resources: hydraulics, hydrology and water resource management. His professional and academic experiences focus on physical river processes (river hydraulics, hydrology, and fluvial geomorphology) with applications to stream rehabilitation, riverine infrastructure management, and flood hazards. Dr. Sholtes co-developed the Colorado Fluvial Hazard Zone Program and actively works on river corridor management studies and planning. Prior to teaching at CMU, Dr. Sholtes worked in the Bureau of Reclamation, Sedimentation River Hydraulics Group.

SEDHYD 2023 Field Trip Descriptions

All field trips will be held on either Monday, May 8 or Friday, May 12, 2023. The full conference registration includes a choice of either 1 field trip, 1 full-day short course, or 2 half-day short courses. Conference attendees may register for additional field trips for an additional fee.

Recreational Activities "On Your Own"

Paddle or Biking Activities at Post-Dispatch Lake – Forest Park in St. Louis
Recreational opportunity to experience Forest Park (City of St. Louis) by boat/water or bike/trails. Paddle boat, canoe, single and double kayak, stand-up paddle board, and bike rentals are available given a 15-minute light rail ride from the hotel and then a 15-minute walk.
Time: 11:00am – 6:00pm each week – Monday through Sunday
Transportation: MetroLink and walking
Contact: (314) 798-2961 – paddleforestpark@gmail.com

Paddle Adventure on the Mississippi River – Big Muddy Adventures
Recreational opportunity to experience the Mississippi River whether guided or as part of a group Adventure trip. Boat or stand-up paddle board rentals are also available at Simpson Lake
Time: Call for details
Transportation: MetroLink, driving, walking
Contact: (314) 896-4262 – trips@2muddy.com
Instagram: @paddlestl
Facebook: @2muddy
Twitter: @paddlestl 2

FIELD TRIP:
1. Day Tour – Taum Sauk Reservoir

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 4:30 pm

DESCRIPTION:
The following field trip will highlight the Taum Sauk pump-storage hydroelectric power plant located in Reynolds County, Missouri, that uses turbines that operate as pumps and hydraulic head generated by discharging water from an upper to a lower reservoir to produce electricity. A 55-acre upper reservoir with a 1.5-billion-gallon capacity was built on top of Proffit Mountain, approximately 760 feet above the floodplain of the East Fork Black River. At approximately 5:16 am on December 14, 2005, a 680-foot-wide section of the upper reservoir embankment failed suddenly, sending water rushing down the western side of Proffit Mountain and emptying into the floodplain of East Fork Black River. Flood waters from the upper reservoir flowed downstream through Johnson's Shut-Ins State Park and into the lower reservoir of the East Fork Black River. Floods such as this present unique challenges and opportunities to analyze and document peak-flow characteristics, flood profiles, inundation extents, and debris movement. This trip would reveal onsite background and discussion of the event including some hiking along the landscape within Johnson Shut-Ins State Park reflective of the 2005 failure.
Tour Led
U.S. Geological Survey - Central Midwest Water Science Center (USGS-CMWSC) and Missouri Department of Natural Resources (MDNR)
Meal Box Lunch 3

FIELD TRIP:
2. Multi-Tour – River Systems Ecology, Research and Engineering, Regulation and Operations

DATE & TIME:
Monday, May 8, 2023 from 8:00 am to 4:30 pm

DESCRIPTION:
The following multi-tour trip begins at the National Great Rivers Research and Education Center (NGRREC), dedicated to the study of great river systems and communities that use them. The NGRREC has a function to promote the use of adaptive and sustainable management, improvement strategies, along with policy development and outreach to protect and sustain the quality of big river environments and their watersheds. A tour of the Leadership in Energy and Environmental Design (LEED) building along with discussions with NGRREC scientists. Next stop is the U.S. Army Corps of Engineers Melvin Price Locks and Dam along the Mississippi River. Mel Price Locks and Dam #26 represents the state of the art in river navigation control works, showcasing lock chambers and dam characteristics that contribute to the

"stairway of water" that allows tow boats, barges, and recreational water craft sufficient water to travel from St. Louis to St. Paul (or vice versa) along the upper Mississippi River. A tour of the locks and dam infrastructure will precede a visit to the National Great Rivers Museum and eventually transition to one of the facility rooms to listen to presentations made by various agencies on topics related to research involving sediment and hydrology. The final stop on this tour will be a visit to the Audubon Center at Riverlands (in partnership with USACE), focused on conservation using science to protect birds and bottomland forest.

Tour Led

U.S. Geological Survey - Central Midwest Water Science Center (USGS-CMWSC) and U.S. Army Corps of Engineers – St. Louis District (USACE-MVS)

Meal

Local Restaurant 4

FIELD TRIP:

3.Big River Site Visit

DATE & TIME:

Monday, May 8, 2023 from 8:00 am to 12:00 pm

DESCRIPTION:

The following field trip is approximately 1 hour from downtown St. Louis, focusing on U.S. Army Corps of Engineers – St. Louis District (USACE-MVS) projects within the Big River basin. Project focus is implementing Engineering with Natural and Nature Based Features (EWN-NNBF) bank stabilization techniques, and general bank stabilization both direct and in-direct. Focus on EWN-NNBF features will be viewed as part of the project design and benefits.

Tour Led

Christopher Haring, PhD, P.G. CFM, Research Physical Scientist, River Engineering Branch, Coastal and Hydraulics Lab – Engineer Research and Development Center – U.S. Army Corps of Engineers (USACE)

Meal Not provided

FIELD TRIP:

4.Multi-Tour – Sediment Removal Operations, Analyses, Collection and Inclusion of Maritime Safety andProtection of Natural Resources

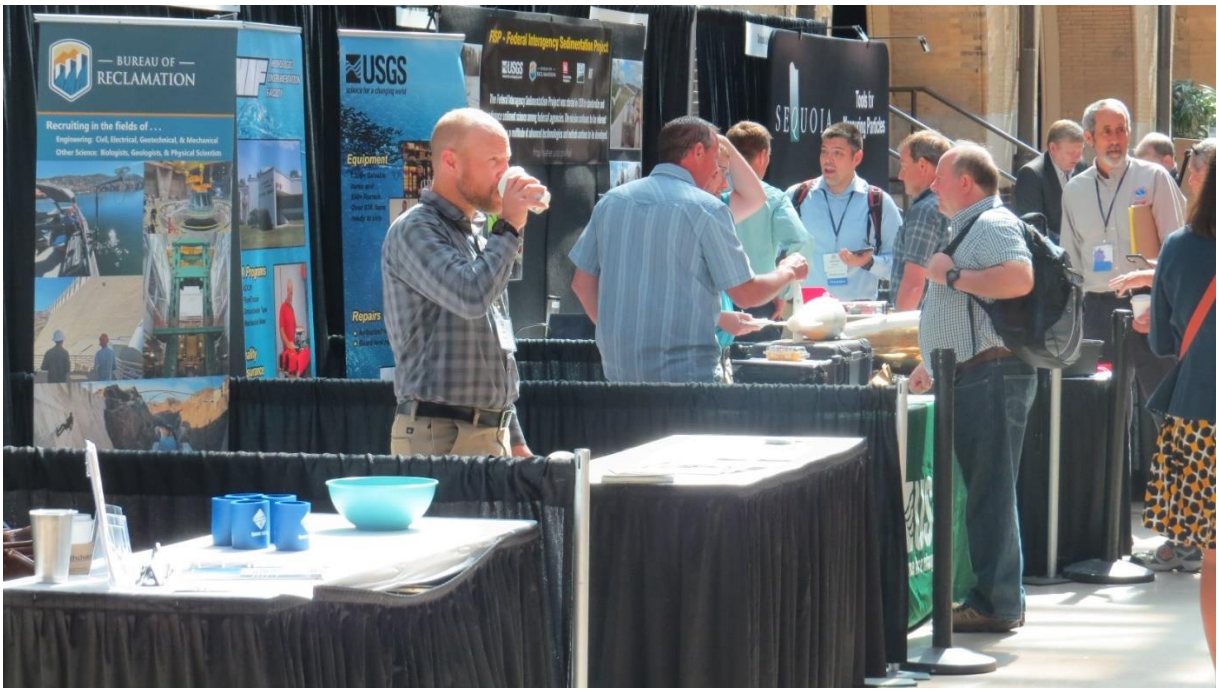
DATE & TIME: Friday, May 12, 2023 from 8:00 am to 3:00 pm **DESCRIPTION:** The following multi-tour trip begins at the foot of Arsenal Street in downtown St. Louis at the location of the USACE-MVS Service Base with a tour of the St. Louis District - U.S. Army Corps of Engineers oldest working dredge "Potter" built during the great depression. The dredge has been operational just over 90 years in achieving its mission of maintaining a congressionally-mandated 9-foot deep, 300-foot-wide navigation channel along the Mississippi. The tour transitions to the local ware yard and parking lot where USACE and USGS showcase equipment and collection protocols involving single- and multi-beam bathymetry surveying, sediment, and measurement of discharge. Next stop is the Hydraulic Sediment Response (Micro-modeling) lab on location that demonstrates small-scale physical models used to address a variety of problems related to shoaling and scour on inland waterways, permitting structural designs for mitigation. Finally, the tour concludes with a visit to the Upper Mississippi River sector of the US Coast Guard, with emphasis toward the regulatory significance to maritime safety and protection of natural resources along the Mississippi River. Tour Led U.S. Army Corps of Engineers – St. Louis District (USACE-MVS) and U.S. Geological Survey - Central Midwest Water Science Center (USGS-CMWSC) **Meal** Box Lunch 5

FIELD TRIP:

5. Small Streams Site Visit

DATE & TIME: Friday, May 12, 2023 from 8:00 am to 12:00 pm **DESCRIPTION:** The following field trip is on the Illinois side and is approximately ½ hour from downtown St. Louis, focusing on the Judy's Branch Grade Control Project that was originally part of a Planning Assistance to the States (PAS) study by the U.S. Army Corps of Engineers – St. Louis District (USACE-MVS) and Colorado State University. There are two other small stream bank stabilization projects scheduled on this site visit. Field site focus will be on grade control and bank stabilization techniques. **Tour Led** Christopher Haring, PhD, P.G. CFM, Research Physical Scientist, River Engineering Branch, Coastal and Hydraulics Lab – Engineer Research and Development Center– U.S. Army Corps of Engineers (USACE) **Meal** Not provided

SEDHYD 2023 Exhibitors



Exhibitor Name	Rep. First Name	Rep. Last Name	Email
Flow Science	Brian	Fox	brian.fox@flow3d.com
Sequoia Scientific, Inc	Jim	Decker	Jim.decker@sequoiasci.com
Teledyne Marine	Janice	Yasui	janice.yasui@teledyne.com
Dynamic Solutions, LLC	Tim	Stephens	tastephens@dsllc.com
Wolf Water Resources, Inc	Luke	Russell	lrussell@wolfwaterresources.com
Hülskens Sediments GmbH	Lara	Gehrmann	Lara.Gehrmann@huelskens.de
Bureau of Reclamation	Jennifer	Bountry	jbountry@usbr.gov
Federal Interagency Sedimentation Project	Michael	Manning	mmanning@usgs.gov
USGS Hydrologic Instrumentation Facility	Gerald	Kunkle	gkunkle@usgs.gov
AAWRE	Jim	Barton	jbarton.sedhyd@gmail.com
GFS Chemicals	Michael	McBride	mikem@gfschemicals.com
Seafloor Systems	Noah	Williams	noah@seafloor.com
Hydrologic Engineering Center	Alejandro	Sanchez	Alejandro.sanchez@usace.army.mil
U.S. Geological Survey	Katie	Skalak	kskalak@usgs.gov

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Abban	Benjamin	Hydraulic Engineer	Bureau of Reclamation
Abbe	Tim	Principal Geomorphologist	Natural Systems Design
Ackerman	Cameron	Senior Hydraulic Engineer	USACE - HEC
Al-Hamdan	Mohammad	Director and Research Professor	National Center for Computational Hydroscience and Engineering / University of Mississippi
Allan	Genevieve	Project Management Specialist	USBR
Amorim	Renato		University of Iowa
Anderson	Tristen	Graduate Student	Colorado State University
Argast	Tim	Geomorphologist	Northwest Hydraulic Consultants
Armstrong	Straud	Director, Product & Sales	HYPACK, A Xylem Brand
Arroyo-Soto	Anthony	Civil Engineer (Hydraulics)	USACE - St. Louis District
Ashley	Andy		
Ashley	Thomas	Hydrologist	United States Bureau of Reclamation
AuBuchon	Jonathan	Regional Sediment Specialist	U.S. Army Corps of Engineers, Albuquerque District
Bahner	Chris	Project Manager	WEST Consultants, Inc
Baird	Drew	Hydraulic Engineer	U.S. Bureau of Reclamation
Baiyegunhi	Christopher	Prof	University of Limpopo South Africa
Baki	Abul	Assistant Professor	Clarkson University
Ballantine	Jeffrey	Hydraulic Engineer	USACE
Ballard	Chad	Senior Engineer	AEM
Banitt	Ann	Senior Hydraulic Engineer	USACE
Barbatano	John	Engineer	OHM Advisors
Barkach	John		Wayne State University
Barrera Crespo	Pedro	Hydraulic Specialist	CELEC EP
Bartles	Mike	Hydraulic Engineer	U.S. Army Corps of Engineers - Hydrologic Engineering Center
Barton	James	Senior Water Resources Engineer	Stantec
Benoit	Vincent	Civil Engineering Technician	Bureau of Reclamation
Bernard	Jerry	National Geologist	USDA-NRCS retired
Bernard	Sally		
Berrios Williamson	Viviana		USACE, Vicksburg District
Bertrand	Darren	Vice President	River Focus, Inc.
Biedenharn	David	Research Hydraulic Engineer	U.S. Army Corps of Engineers ERDC
Bilek	Susan	Professor	New Mexico Tech
Bingner	Ronald	Agricultural Engineer	USDA-ARS
Blackwood	David	Executive Director	West TN River Basin Authority
Blount	James	Physical Scientist	US Geological Survey
Boeckmann	John	Supervisory Hydraulic Engineer	US Army Corps of Engineers MVS
Boldt	Justin	Hydrologist	U.S. Geological Survey
Botero Acosta	Alejandra	Dr.	WATER Institute - Saint Louis University
Bounds	James	Engineering Tech	USGS/HIF

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Bountry	Jennifer	Hydraulic Engineer	Bureau of Reclamation
Boyd	Paul	Hydraulic Engineer	US Army Corps of Engineers
Bradley	Ryan	Geomorphologist	Northwest Hydraulic Consultants
Bradley	D. Nathan	Geomorphologist	U.S. Bureau of Reclamation
Brancati	Olivia	Senior Engineer	Salt River Project
Brauer	Edward	Hydraulic Engineer	U.S. Army Corps of Engineers
Braz	Rebecca	Civil Engineer	US Bureau of Reclamation
Breverman	Avital	Hydraulic Engineer	U.S. Army Corps of Engineers Hydrologic Engineering Center
Brogan	Dan	Senior River Engineer	Northwest Hydraulic Consultants
Brooks	Peter	Principal	Northwest Hydraulic Consultants
Broussard	Cameron	Hydraulic Engineer	USACE, MVN
Brown	Jeb	Hydrologist	USGS
Brown	Jesse	Hydraulic Engineer	USACE
Brown	Stephen	Research Hydrologist	USACE
Brown	Gary	Research Hydraulic Engineer	USACE-ERDC
Brunner	Gary	Senior Water Resources Technical Advisor	HDR Engineering
Brunty	Jessica	Civil Engineer	USACE
Buchholz	Micah	Sr. Hydraulic Engineer	US Army Corps of Engineers
Buesing	Aaron	Hydraulic Engineer	USACE
Bui	Chi	Engineering Tech Lead, Hydraulic Engineer	U.S. Army Corps of Engineers
Burken	Robert	Business Tools Coordinator/GIS Specialist	USDA - Natural Resources Conservation Service
Byrne	Colin	Hydraulic Engineer	US Bureau of Reclamation
Cadol	Daniel	Associate Professor	New Mexico Tech
Cagle	Taylor	Hydraulic Engineer	USACE ERDC
Cahill	Ryan	Hydraulic Engineer	USACE-Portland District
Calappi	Tim		Us army Corps of Engineers
Cancelliere	Antonino	Professor	University of Catania
Carpenter	Brian	Senior R&D Engineer	University of Mississippi, National Center for Physical Acoustics
Castro	Janine	Geomorphologist	US Fish & Wildlife Service
Centola	Deborah		US Army Corps of Engineers - New Orleans
Chao	Xiaobo	Senior Research Scientist	The University of Mississippi
Chaulagain	Smriti	Hydraulic Engineer	Tetra Tech
Chen	Cindy	Hydraulic Engineer	USACE MVS
Cheng	Zhengyang	Hydraulic Engineer	Hydrologic Research Center
Ching	Ryan	Hydraulics Engineer	USACE
Chisholm	Thomas		USACE (retired)
Cho	Se	Research Hydrologist/Mendenhall Research Fellow	USGS
Chrisman	Nathan	Civil Engineer	USACE
Christensen	Jennifer	Hydrologic & Climate Resilience Engineer	USACE
Clifton	Zach	Mr.	US Geological Survey
Collins	Kent	Hydraulic Engineer	Bureau of Reclamation
Collum	Joe	Hydraulic Engineer	US Army Corps of Engineers
Comport	Brendan	Mr.	USACE
Condon	Justin	Staff Professional	S&ME
Connor	Erin	Hydraulic Engineer	Bureau of Reclamation
Conover	Suzzanne	River Engineer Student	Tulane
Corsi	Brianna	Hydraulic Engineer	Colorado State University
Corum	Zachary	Sr. Hydraulic Engineer	USACE Seattle District
Cox	Amanda	Associate Professor	Saint Louis University
Crayne	Brice	Project Manager	Lower Columbia Fish Enhancement Group
Croley	Claire	Graduate Student	Missouri University of Science and Technology
Crosby	Wesley	Modeling Branch Chief	U.S. Army Corps of Engineers, MMC
Crouch	Trey	Civil Engineer (Hydrologic/Hydraulic)	USACE
Cuevas	Carlos	Civil Engineer	Bureau of Reclamation
Curran	Joanna	Fluvial Geomorphic Engineer	USACE
Curtis	Kathleen		
Curtis	Jennifer	Research Geologist	USGS
Curtis	David	Senior Technical Advisor	WEST Consultants

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Czuba	Jonathan	Dr.	Virginia Tech
Dadkhah	Ali		University of Vermont
Dahl	Travis	Research Civil Engineer (Hydraulics)	USACE ERDC-CHL
Daus	Andrew	Professional Hydrologist	WEST Consultants, Inc.
David	Scott		Utah State University
Davis	Alex	Civil Engineer	US Army Corp of Engineers
Decker	Jim	Manager Sales & Marketing	Sequoia Scientific, Inc
Delaney	Chris	Senior Engineer	CW3E
Dell'Aira	Francesco	Ph.D. Student	University of Memphis
Den Herder	Jeff	Applications Engineer	Teledyne Marine
Denn	Kevin	Technical Lead	USACE - St. Paul District
Detering	Michael	Dr.	Hüelskens Sediments
Devine	Paul	Regional Sales Manager	Teledyne RD Instruments
DeWeese	Tim	Civil Engineer	USBR
Dey	Sayan	Research Scientist	Saint Louis University
Diaz-Reyes	Carlos	Hydraulic Engineer	US Army Corps of Engineers - St. Louis
Diehl	Rebecca	Research Assistant Professor	University of Vermont
Dircksen	Matt	Hydraulic Engineer	USACE New Orleans
Dombroski	Daniel	Hydraulic Engineer	Bureau of Reclamation
Doughty	Megan	Civil Engineer	Bureau of Reclamation
Downs	Peter	Senior Research Fellow	University of Portsmouth
Doyle	Micelis	Hydrologist	U.S. Geological Survey
Duan	Jennifer	Professor	University of Arizona
Dudill	Ashley	Hydrotechnical Engineer	Northwest Hydraulic Consultants
Dudunake	Taylor	Hydrologist	U.S. Geological Survey
Duncan	Don	Hydraulic Engineer	USACE-MVD
Dunn	Christopher	Director	Hydrologic Engineering Center
Dworak	Frank	Hydrologic Engineer	U.S. Army Corps of Engineers Risk Management Center
East	Amy	Research Geologist	US Geological Survey
Ebrahimi	Saman	PhD Student	The University of Memphis
Ebrahimi	Mostafa		Southern Illinois University
Echevarria-Doyle	Waleska	Research Hydraulic Engineer	USACE
Eckland	Abigail	Intern	U.S. Bureau of Reclamation
Elliott	Caroline	Geologist	U.S. Geological Survey
Enlow	Holly	Hydraulic Engineer	USACE Memphis District
Eom	Moosub	Regional Technical Specialist	US Army Corps of Engineers
Erickson	Landon	Hydraulic Engineer	USACE
Errett	Russell	Senior Technical Specialist	United States Army Corps of Engineers, Hydrologic Engineering Center
Erwin	Susannah		
Espinoza	Pablo	Mr.	CELEC Ecuador
Esteban	Michael		USACE - SWG
Esteban	Luan	Supervisory Civil Engineer	USACE
Evans	Simon	Hydraulic Engineer	USACE
Fairbank	Timothy	Chief, Hydrology & Hydraulics Branch	U.S. Army Corps of Engineers
Fang	Jiayu	Postdoctoral Research Associate	The University of Mississippi
Figueroa	Andrea	Hydraulic Engineer	USACE-St Louis District
Fitzpatrick	Faith	Research Hydrologist	U.S. Geological Survey
Fleming	Matthew	Hydrologic Engineer	Hydrologic Engineering Center
Floyd	Ian	Research Scientist	US Army Engineer Research and Development Center (ERDC)
Fluke	James	Hydraulic Engineer	US Bureau of Reclamation
Follum	Michael		Follum Hydrologic Solutions, LLC
Fosness	Ryan	Supervisory Hydrologist	USGS
Foster	Melissa	Geomorphologist	USBR
Fowler	Shelby	Fish Passage Engineer	U.S. Fish and Wildlife Service
Fox	Brian	Senior Applications Engineer	Flow Science
Frevert	Donald	SEDHYD Board Member	Retired - USBR
Frick	Marcy	Florida Water Operations Manager	Tetra Tech, Inc.
Fripp	Jon	Co-Director NDCSMC	USDA NRCS NDCSMC
Funkhouser	Cathy	Hydraulic Engineer	USACE

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Gaeuman	David	Geomorphologist	Yurok Tribe
Gager	James	Global Channel Accounts Manager	Seafloor Systems
Gambill	Robert	Supervisory Civil Engineer	US Army Corps of Engineers
Gauthier-Fauteux	Simon	Geomorphologist	Northwest Hydraulic Consultants
Gehrmann	Lara	Project Manager	Hülskens Sediments GmbH
Gellis	Allen	Research Geomorphologist	USGS
Gerlach	Mike	Sr. Project Manager	WEST Consultants
Gessler	Dan	Vice President	Alden Research Laboratory LLC
Getahun	Elias	Associate Research Scientist	Illinois State Water Survey
Gibson	Stanford	HEC-RAS Sediment Specialist	HEC
Giovando	Jeremy	Research Hydraulic Engineer	USACE-CRREL
Girdner	Sarah	Chief, Water Control Section	USACE - MVM
Glysson	Doug	Hydrologist	SEDHYD Board of Directors
Gombert	Carolyn	Civil Engineer	Bureau of Reclamation
Goodwiller	Bradley	Research Scientist	National Center for Physical Acoustics and School of Engineering. University of Mississippi
Goodwin	R. Andrew (Andy)	Research Engineer	U.S. Army Engineer R&D Center, Environmental Laboratory
Gordon	David	Chief, Hydraulic Design	U.S. Army Corps of Engineers
Gragg	Justin	Principal Hydrologist	Environmental Science Associates (ESA)
Grams	Paul		US Geological Survey
Grant	Abigail	Research Engineer	USACE
Grava	Josh	Vice President - Sales	Seafloor Systems
Greimann	Blair	Water Resource Team Lead	Stantec
Greimann	Blair	Water Resources Team Lead	Stantec
Griffin	Steven	Professional Engineer	Colorado Department of Transportation
Griffiths	Justin	Senior Project Manager/Senior Engineer	WEST Consultants, Inc.
Gross	Thomas	Dipl.-Ing.	Hülskens Sediments GmbH
Groten	Joel	Hydrologist	U.S. Geological Survey
Guertin	David	Professor	University of Arizona
Gwynn	Katherine	Jr. Water Resources Engineer	Precision Water Resources Engineering (PWRE)
Hall	Brian	Hydraulic Engineer	USACE
Hall	Mark	Geologist	USDA-NRCS
Haluska	Patrick	Hydrologist	USGS
Hamilton	Paul		USACE
Hamshaw	Scott	Machine Learning Specialist	U.S. Geological Survey
Hanbali	Fauwaz	Senior Technical Specialist	US Army Corps of Engineers
Harbert	Sarah	Jr. Geomorphologist	Northwest Hydraulic Consultants
Hardee	Travis	Engineer	Reclamation
Haring	Chris	Research Physical Scientist	US Army Corps of Engineers
Harrell	Jane	Civil Engineer	US Army Corps Of Engineers
Harris	Aubrey	Research Civil Engineer	USACE-ERDC/UNM
Harris	Kathleen	Research Hydraulic Engineer	United States Army Corps of Engineers ERDC
Harris	Jeff	Senior Hydrologist	WEST Consultants
Hayter	Lindsey		Colorado State University
Hecht	Jory	Hydrologist	US Geological Survey
Heer	Rob	Program Manager	Tetra Tech
Heller	Tracey	Civil Engineer	Bureau of Reclamation
Helminiak	Jacob	Hydraulic Engineer	USACE Philadelphia District
Hericks	David	Principal Oceanographer / Hydrographer	Tetra Tech, Inc.
Herrington	Cameron	Senior Hydraulic Engineer	Bureau of Reclamation
Hess	Joshua	Research Specialist II	Ozarks Environmental and Water Resources Institute
Hilldale	Robert	Hydraulic Engineer	Bureau of Reclamation
Hix	Kyle		United States Geological Survey
Ho	David	Hydraulic Engineer	Hydrologic Engineering Center
Hogan	Scott	Senior Hydraulic Engineer	FHWA
Holman	Kathleen		Bureau of Reclamation
Holmes	Robert		Missouri University of Science and Technology
Holste	Nathan	Hydraulic Engineer	Bureau of Reclamation
Homan	Joel	Hydrologist	USGS

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Hopkins	Leonard	Supervisor / Civil Engineer	U.S. Army Corps of Engineers - St. Louis District
Hotchkiss	Rollin	Professor	Brigham Young University
Howard	Adam	Hydraulic Engineer	USACE St. Paul
Howe	Edmund	Chief, Hydrology & Hydraulics	U.S. Army Corps of Engineers - Little Rock District
Hoy	Matthew	Senior Principal	Stantec Consulting Services Inc.
Huang	Jianchun	Hydraulic Engineer	Bureau of Reclamation
Human	David	Senior Associate/Levee (Attorney)	Husch Blackwell LLP
Hurst	Aaron	Geomorphologist	USBR
Husic	Admin	Assistant Professor	University of Kansas
Ibrahim	Jamil	Immediate Past-President	American Institute of Hydrology/Stantec
Inman	Kathleen	Research Civil Engineer	USACE-ERDC-EL
Jain	Priyanka	Senior Civil Engineer	East Bay Municipal Utility District
Jemes	Kellie	Civil Engineer	USACE, Sacramento District
Jenner	Brittany		
Jensen	Mark	Senior Hydraulic Engineer	HEC
Johnson	Gary	Supv Hydrologist	USGS
Jonas	Meg		
Jones	AJ	Water Resources Engineer	Wolf Water Resources
Jones	Keaton		USACE ERDC CHL
Kafle	Nischal	PHD Student	University of Memphis
Keefer	Laura	Deputy Director	Illinois State Water Survey
Keith	Mackenzie	Hydrologist	USGS
Keller	Katelyn	River Coastal Modeler	USACE
Kemp Weitzman	Erica	Chief, Hydrology & GIS Section	USACE
Kenworthy	Megan	Hydrologist	U.S. Geological Survey
Key	Lesli	Civil Engineer	USACE (Kansas City)
Kickham	Peter	Graduate Research Assistant	SLU Water Institute
Kimbrel	Sean	WWCRA Coordinator	Bureau of Reclamation
Kinzel	Paul	Hydrologist	U.S. Geological Survey
Kitaba	Alemu Dribssa	Managing Director	AYJEF Water Works and Business Service PLC
Knisley	Gerald	Product Manager	Xylem - HYPACK
Knutson	Mike	Hydraulic Engineer	U.S. Bureau of Reclamation
Kohn	Mike	Hydrologist	U.S. Geological Survey
Kolle	Forrest	Hydraulic Engineer	USACE
Kpamnona	Mabambe	Civil Engineer	FHWA Western Federal Lands Highway Division
Kramer	Casey	President	Natural Waters, LLC
Krischel	Bradley	Senior Hydraulic Engineer	United States Army Corps of Engineers
Kroes	Daniel	Research Ecologist	US Geological Survey
Kruse	Bradley	Hydraulic Engineer	US Army Corps of Engineers - St. Louis District
Kuhn	Walt	Sr Hydraulic Engineer	Tetra Tech
Kuhnle	Roger	Research Hydraulic Engineer	USDA-ARS
Kunkle	Gerald	Hydrologist	USGS
Lai	Yong	Hydraulic Engineer	US Bureau of Reclamation
Lal	Wasantha	Lead Engineer	US Army Corps of Engineers, Jacksonville District
Lamport	Michael	Hydraulic Engineer	USACE
Landwehr	Kevin	Chief, Hydrology and Hydraulics Branch	US Army Corps of Engineers - Rock Island
Lange	Joe	NRCS WA State Design Engineer	USDA Natural Resources Conservation Service
Langendoen	Eddy	Research Hydraulic Engineer	USDA ARS
Laronne	Jonathan	Professor	Ben Gurion University
Larsen	Ryan	Reservoir Regulation Team Lead	US Army Corps of Engineers
Lauer	Wes	Professor	Seattle University
Lauth	Timothy	Hydraulic Engineer	US Army Corps of Engineers - St. Louis District
Lawson	Scott	Research Analyst	University of Vermont
Leal	Jose Carlos	Project Manager	Energia Limpia de Guatemala, S.A.
Lee	Richard	Hydraulic Engineer	US. Army Corps of Engineers
Legg	Nick	Geomorphologist, Watershed Science Director	Wolf Water Resources
Leon Salazar	Claudia	Civil Engineer	U.S. Bureau of Reclamation
LeRoy	Jessica	Hydrologist	USGS

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Lesmes	David	Director, Integrated Modeling and Prediction Division	USGS - Water Mission Area
Lewis	Jim	Hydraulic Engineer	Baird & Associates
LI	WEIMIN		US Army Corps of Engineers
Liu	Xiaofeng	Associate Professor	Penn State University
Llewellyn	Dagmar	Civil Engineer (Hydrologic); Planning Group Supervisor, Albuquerque Area Office	Bureau of Reclamation
Locke	Martin	Supervisory Research Soil Scientist and Laboratory Director	USDA-ARS-NSL
Loney	Drew	Civil Engineer (Hydrologist)	Bureau of Reclamation
Lu	Qimiao	Dr.	Baird & Associates
Lucena	Zulimar	Hydrologist	U.S. Geological Survey
Lund	J. William	Hydrologist	USGS - Upper Midwest Water Science Center
Luong	Loc	Student	New Mexico Institute of Mining and Technology
Ly	Cuong	Senior Water Management Engineer	US Army Corps of Engineers
Lyons	Troy	Associate Director	IIHR-Hydroscience and Engineering, The University of Iowa
Mahdavi Mazdeh	Ali	Dr.	Penn State University
Manasco	Nicole	Hydrologist	USACE - Rock Island
Manley	Lea	Hydraulic Engineer	USACE Seattle District
Manning	Michael	Physical Scientist	USGS
Mansfield	Michael	River Engineer	USACE
Maskey	Mahesh Lal	Calibration of APEX Model to Assess Farm-scale Runoff for Grazing Operation and Uncertainty Analysis	USDA-ARS/SWMRU
Maskey	Mashey Lal	USDA-ARS/SWMRU	
Massoudieh	Arash	Professor	The Catholic University of America
McAlpin	Tate		USACE
McBride	Michael	Business Development Manager, Research and Analytical Chemicals Division	GFS Chemicals
McConnell	Adriel	Senior Project Manager - Water Resources for Latin America	US Army Corps of Engineers
McCoy	Andy	Computational Fluid Dynamics Business Class Lead	HDR Engineering
McEnery	John	Senior Hydraulic Engineer	USACE - MVS
McGrath	Marcus	Sr. Research and Development Engineer	University of Mississippi
McKay	Kyle		US Army Corps of Engineers
McKenna	Sean	Director, Hydrologic Sciences	Desert Research Inst.
McLaughlin	Mitchell		New Mexico Institute of Mining and Technology
McMackin	Elizabeth		
Meier	Claudio	Associate Professor	The University of Memphis - CE Department
MELLIGER	JOSHUA	Senior Hydraulic Engineer	USACE
Menichino	Garrett	Research Civil Engineer	USACE ERDC
Meyer	Deanna	Graduate Research Assistant	Saint Louis University
Michalek	Alexander	Graduate Research Assistant	University of Iowa IIHR Hydroscience & Engineering
Mikkelsen	Ole	President/CEO	Sequoia Scientific, Inc.
Miller	Curtis	Hydraulic Engineer	USACE
Miller	Jan	Civil Engineer	Bureau of Reclamation
Minear	J. Toby	Research Hydrologist	University of Colorado, Boulder
Miralda	Jose Ramon	CEO	ENERGIA LIMPIA DE GUATEMALA, S.A.
Mize	Scott	Hydrologist	US Geological Survey
Mohammadi	Efat		
Mollah	Raziul	Chief, Hydraulic Design Section	US Army Corps of Engineers-Sacramento District
Mora	Jennifer	Civil Engineer (Hydraulics)	
Moree	Dana	Ms	USACE
Morris	Gregory	Partner	GLM Engineering
Morris	Chad		Alden Research Lab

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Morris	Zachary	Computer Scientist	USACE HEC
Mosbrucker	Adam	Geologist	USGS
Moskal	Rebecca		New Mexico Tech
Mueller	Chanel		USACE
Murphy	Jenny	Hydrologist	USGS Central Midwest Water Science Center
Murray	Autumn	Research Physical Scientist	USACE ERDC CHL REEB
Murray	John		Colorado State University
Mussetter	Robert (Bob)	Discipline Leader	Tetra Tech, Inc
Nam	Soonkie	Assistant Professor	Georgia Southern University
Neff	Keil		Stantec
Neighorn	James	Hydraulics Engineer	FHWA Western Federal Lands Highway Division
Nelson	Peter	Associate Professor	Colorado State University
Nelson	Andrew	Geomorphologist	Northwest Hydraulic Consultants
Nelson	Amanda	Research Hydrologist	NCAAR/USDA-ARS
Nemeth	Mark	Supervisory Civil Engineer	U.S. Bureau of Reclamation
Neumann	David	Lead Engineer and Business Analyst	University of Colorado Boulder
Nielsen	Justin	Hydraulic Engineer	US Bureau of Reclamation
Noe	Patrick		
Nouwakpo	Kossi	Research Soil Scientist	USDA-ARS-PWA-NWISRL
Nygaard	Christopher	Hydraulic Engineer	USACE
O'Connor	Ben		US Army Corps of Engineers
Oelsner	Gretchen	Hydrologist	U.S. Geological Survey
Otero	William	Senior Hydraulic Engineer	US Army Corps of Engineers - Northwestern Division
Ozeren	Yavuz	Research Assistant Professor	NCCHE, The University of Mississippi
Padilla	Robert	Supervisory Civil Engineer	Bureau of Reclamation
Pak	Jay	Sr. Research Hydraulic Engineer	US Army Corps of Engineers - Hydrologic Engineering Center
Pan	Jimmy	Hydraulic Engineer	USACE
Paredez	Jose	Civil Engineer	U.S. Army Corps of Engineers
Pathak	Chandra	Technical Program Chair	SEDHYD 2023
Pathak	Neena		
Pavlowsky	Robert	Professor	Missouri State University
Pearson	Carolyn	Hydrologic Engineer	U.S. Army Corps of Engineers
Pizzi	David	Sr. Hydraulic Engineer	Alden Research Laboratory
Plumlee	Geoffrey	Chief Scientist of the USGS	US Geological Survey
Polatel	Ceyda	Lead Hydraulic Engineer	USACE - Jacksonville District
Portalatin	Juan		GLM Engineering
Posner	Ari	Physical Scientist	Bureau of Reclamation
Pradhan	Nawa	Research Hydraulic Engineer	US Army Engineer Research and Development Center
Price	Mitch	Mr.	USACE-NWW
Pridal	Dan	Chief River and Reservoir Eng	USACE-Omaha
Radford	Warren		USACE
Ramirez	David	Sediment and nutrient deposition over a reconnected floodplain during a large-scale river diversion,	USACE
Randle	Kathy		
Randle	Tim	Board of Directors, Secretary	SEDHYD, Inc.
Rapp	Cygnia	Transportation Planning Specialist 4	Washington State Department of Transportation
Rébillout	Luc	Postdoctoral Research Associate	NCCHE
Remus	John	Chief, Missouri River Basin Water Management Division	U.S. Army Corps of Engineers
Riley	Kristy	Division Chief, Hydraulics	USACE - HEC
Ritter	Daniel	Product Manager	SonTek
Rizzo	Donna	Professor - Civil & Environmental Engineering	University of Vermont
Robinson	Dusty	Project Manager - River Engineering	Ayres
Robinson	Delaney	Geologist	USDA-NRCS
Robinson	KC	Water Resources Engineer	AECOM
Rodriguez	Teresa		GLM Engineering
Rossell	William	Hydrologist	USDA-ARS (ORISE)

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Russell	Kendra	Delaware River Master	US Geological Survey
Russell	Luke	Geomorphologist	Wolf Water Resources, Inc
Ryder	Jodi	Research Civil Engineer	USACE-ERDC
Rydlund	Paul	Hydrologist	USGS
Rynk	Virginia	Civil Engineer	US Army Corps of Engineers
SAHIN	Ahmet	Development of an interactive web-based user interface for AIMS (Computer model demonstration)	NCCHE
Salter	Gerard	Research Hydrologist	United States Geological Survey
Sanborn	Stephen	Senior Water Resources Engineer	Dynamic Solutions, LLC
Sanchez	Alejandro	Senior Hydraulic Engineer	Hydrologic Engineering Center
Schafer	Lindsey	Hydrologist	U.S. Geological Survey
Schenk	Ed	Stormwater Manager	Flagstaff Water Services
Schenk	Liam	Science Advisor	U.S. Geological Survey
Schneider	Jason	Sr Project Manager	Stantec
Schrader	Lori	Water Resources Engineer	Stantec
Schulz	Rachel	Hydrology Section Chief	USACE Omaha District
Schwar	Heather	Water Resources Engineer	Stantec
Schwartz	John	Professor and Director of the Tennessee Water Resources Research Center	University of Tennessee, Knoxville
Scurlock	Michael		GEI
Sear	Carly		Saint Louis University
Seefus	Katie	Hydraulic Engineer	USACE
Selegean	Jim	Hydraulic Engineer	U.S. Army Corps of Engineers - Detroit District
Seyfer	Samuel	Hydrologist	USDA-NRCS
Shaloka	Elizabeth	Hydraulics Engineer	USACE - Philadelphia District
Sharp	Jeremy		ERDC
Shaughnessy	Heather	Hydraulic Engineer	USACE, Kansas City District
Shearer	Eric	Research Hydraulic Engineer	USACE-ERDC-CHL
Shelley	John	River Engineer	USACE
Shields	Fletcher	Doctor	cbec eco engineering
Shillito	Rose	Research Physical Scientist	USACE - ERDC
Shinbein	Melissa	Hydraulic Engineer	US Bureau of Reclamation
Sholtes	Joel	Asst. Teaching Professor	Univ. of Colorado, Boulder
Shour	Kyle	Hydraulic Engineer	Tetra Tech, Inc.
Siemion	Jason	Hydrologist	US Geological Survey
Simmons	Lane	Hydrologist	USGS
Sixta	Michael	Hydraulic Engineer	Reclamation
Skalak	Katherine	Program Manager, Integrated Water Prediction	US Geological Survey
Smith	Sean	Principal Hydrologic and Hydraulic Engineer, HQUSACE	USACE
Smith	James	Hydrologist	USDA
Smith	Daniel	Hydraulic Engineer	U.S. Army Corps of Engineers
Snyder	Preston	Engineer	USACE
Snyder	Noah	Professor	Boston College
Soar	Philip	Associate Professor	University of Portsmouth
Sokolovskaya	Natalya	Hydraulic engineer	USACE HEC-HMS
Sortor	Rachel	Physical Scientist	USGS
Spitz	William	Senior Geomorphologist	Olsson, Inc.
Stacanelli Pires Chagas Scott	Isis	Soil Scientist	USDA-ARS-PWA-NWISRL
Stark	Kyle	Environmental Scientist	San Francisco Estuary Institute
Staub	Tim	Hydrologist	USGS
Stefanovic	Dragi	National Tech Advisor Sediment Transport & Scour	HDR Engineering
Stephens	Tim	Senior Water Resources Engineer	Dynamic Solutions, LLC
Stofleth	John	Senior Engineer	cbec, Inc.
Stoklosa	Matthew		
Stone	Amanda	Civil Engineer (Hydrologic)	Bureau of Reclamation
Stonebrook	Cole	River Engineering SME	USACE - Memphis District
Stork	Anton	Civil Engineer	US Army Corps of Engineers
Sukupayo	Serox	Mr.	University of Memphis

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Svendsen	Chris`	Hydraulic Engineer	USACE Omaha District
Swami	Shaurya		University of Vermont
Talbot	Cary	Division Chief	USACE - ERDC
Teal	Martin	President	WEST Consultants, Inc.
Tejral	Ronald	Engineer	Nebraska Public Power District
Thames	Brantley	USACE CPR CoP National Policy Advisor: Climate and Military Programs	US Army Corps of Engineers
Thomas	Dai	Senior Hydraulic Engineer	Tetra Tech
Thorne	Colin		
Throop	Ashley	Hydraulic Engineer	USACE
Tipton	Alan	Project Engineer	Ecological Resource Consultants
Tong	Tak Yung (Susanna)	Professor	University of Cincinnati
Tong	Tak		U of Cincinnati
Travis	Quentin	Director of Applied Research	WEST Consultants
TSAI	BING-SHIOU	Engineer	Sinotech
Tsakiris	Achilleas	Hydraulic Specialist	Northwest Hydraulic Consultants
Underwood	Kristen	Research Assistant Professor	University of Vermont
Ursic	Michael	Civil Engineer	USDA ARS NSL
Varyu	David	Hydraulic Engineer	Reclamation
Vasquez	Pepe	Principal	Northwest Hydraulic Consultants
Veatch	Will	Lead, Climate Preparedness and Resilience	US Army Corps of Engineers
Venhaus	Lacey	Chief, Hydraulic Engineering Section	US Army Corps of Engineers - St. Louis District
Verdin	Andrew		Stantec
Vest	John	Hydraulic Engineer	United States Army Corps of Engineers
Vieira	Dalmo	Research Civil Engineer	USDA - Agricultural Research Service
Villarini	Gabriele	Professor	The University of Iowa
Voss	Matthew		
Wallace	James	Civil Engineer	USACE
Wallen	Christopher	Dynamic Solutions, LLC	
Warner	Michael	Meteorologist	US Army Corps of Engineers, Seattle District
Webb	Jerry	Chair, SEDHYD Inc.	WEST Consultants (Retired USACE)
Welch	David	Development and Operations Hydrologist	NWS-Lower Mississippi River Forecast Center
Whelan	Michael	Principal Engineer	Anchor QEA
White	Phoebe		Colorado State University
White	Daniel		Colorado State University
Wiegand	Jessica	Hydraulic Engineer	United States Army Corps of Engineers St Louis District
Wilcock	Peter	Professor	Utah State University
Wilkinson	Maude	Civil Engineer	USACE
Williams	Priscilla	Postdoctoral Research Scholar	IIHR - Hydroscience & Engineering
Williams	David	El Presidente	David T. Williams and Associates, Engineers, LLC
Williamson	Tanja	Research Hydrologist	US Geological Survey - OH-KY-IN Water Science Center
Witt	Adam	Senior Water Resources Engineer	Stantec
Witthaus	Lindsey	Research Hydrologist	USDA-ARS National Sedimentation Laboratory
Wittmershaus	Alex	Junior Engineer	Northwest Hydraulic Consultants
Woockman	Robert		USBR
Wood	Molly	Hydrologic Networks Branch Chief	U.S. Geological Survey
Wooters	Harrison		
Wren	Daniel	Hydraulic Engineer	USDA-ARS
Wu	Weiming	Professor	Clarkson University
Wynn-Thompson	Tess	Associate Professor	Virginia Tech
Yasui	Janice	Product Line Manager	Teledyne Marine
Yaw	Miles	Civil Engineer - Hydraulics and Hydrology	Tennessee Valley Authority
Yochum	Steven	National Hydrologist	U.S. Forest Service
Young	Nathan	Research Engineer	IIHR-Hydroscience & Engineering, University of Iowa
Yu	Guo	Assistant Research Professor	Desert Research Institute

SEDHYD 2023 Registered Attendees

Last Name	First Name	Title	Company
Yuill	Brendan	Hydrologist	USACE MVN
Zager	Matthew	Chief Hydrologic Engineering Section	US Army Corps of Engineers Rock Island District
Zarnaghsh	Amirreza	PhD student	University of Kansas
Zey	Scott	Project Manager	Ayres
Zhang	Yaoxin	Senior Research Scientist	National Center for Computational Hydro-science and Engineering, University of Mississippi
Zhang	Zhong	Research Professor	Portland State University
Zimmerman	Julia		USACE-ERDC-CHL
Zimmermann	Andre	Principal	Northwest Hydraulic Consultants
Zlotopolski	Jaccob	Hydraulic Engineer	USACE
Zuercher	Meg	Hydraulic Engineer	USACE ST LOUIS
Zundel	Alan	Vice President	Aquaveo, LLC

SEDHYD-2023 Professional Development Hours Form

Engineers and Scientists attending the SEDHYD-2023 Conference are eligible to earn continuing education credits in the form of professional development hours (PDH). A PDH is defined as one contact hour of presentation or study and is a recognized unit of record for non-credit professional development programs. Please use this form to track which activities you completed. Check off each session you attended and calculate the totals.

Monday, May 8th		**Activity**	**PDHs**
□	8am—4:30pm	**Field Trip 1.** Day Tour – Taum Sauk Reservoir	8
□	8am—4:30pm	**Field Trip 2.** Day Multi-Tour – River Systems Ecology, Research and Engineering, Regulation and Operations	8
□	8am—12pm	**Field Trip 3.** Big River Site Visit	4
□	8am—5pm	**Short Course 1.** Reservoir Sedimentation: Measuring and Managing into the Future	8
□	8am—5pm	**Short Course 2.** Stage 0/8 River Restoration Workshop	8
□	8am—5pm	**Short Course 3.** OpenFOAM CFD Workshop	8
□	8am—12pm	**Short Course 4.** Sediment Fingerprinting	4
□	8am—12pm	**Short Course 5.** HEC-RTS	4
□	8am—12pm	**Short Course 6.** Sediment Data Collection Techniques	4
□	8am—12pm	**Short Course 7.** Flow Frequency Analysis using Bulletin 17C	4
□	8am—12pm	**Short Course 8.** Introduction to Successful Sediment Transport Modeling	4
□	1pm—5pm	**Short Course 9.** Sediment Transport Modeling with SRH-2D: Riverine and Watershed Scale	4
□	1pm—5pm	**Short Course 10.** New Feature and Capabilities in HEC-RAS 6	4
□	1pm—5pm	**Short Course 11.** An Overview of Selected Sediment Surrogate Techniques	4
□	1pm—5pm	**Short Course 12.** Sediment Transport in Stream Channel Design	4
□	1pm—5pm	**Short Course 13.** Debris Flow Analysis with HEC-HMS and HEC-RAS	4
Total for Field Trips or Short Courses Attended on Monday, May 8th (8 maximum):			
Tuesday, May 9th		**Activity**	**PDHs**
□	9am—12pm	Opening Session	3
□	1:30pm—3pm	Concurrent afternoon Session 1	1.5
□	3:30pm—5pm	Concurrent afternoon Session 2	1.5
Total for Sessions Attended on Tuesday, May 9th (6 maximum):			

Wednesday, May 10th		Activity	PDHs
□	8:30am—10am	Concurrent morning Session 3	1.5
□	10:30am—12pm	Concurrent morning Session 4	1.5
□	1:30pm—3pm	Concurrent afternoon Session 5	1.5
□	3:30pm—5pm	Concurrent afternoon Session 6	1.5
Total for Sessions Attended on Wednesday, May 10th (6 maximum):			
Thursday, May 11th		**Activity**	**PDHs**
□	8:30am—10am	Concurrent morning Session 7	1.5
□	10:30am—12pm	Concurrent morning Session 8	1.5
□	1:30pm—3pm	Concurrent afternoon Session 9	1.5
□	3:30pm—5pm	Poster and Computer Model Demonstration Session	1.5
Total for Sessions Attended on Thursday, May 11th (6 maximum):			
Friday, May 12th		**Activity**	**PDHs**
□	8am—12pm	**Field Trip 4.** Multi-Tour – Sediment Removal Operations, Analyses, Collection, and Inclusion of Maritime Safety and Protection of Natural Resources	4
□	8am—12pm	**Field Trip 5.** Small Streams Site Visit	4
□	8am—12pm	**Short Course 14.** Predicting fish response to infrastructure and management in different environments: the Eulerian-Lagrangian-agent Method (ELAM)	4
□	8am—12pm	**Short Course 15.** CE-QUAL-W2 Hydrodynamic and Water Quality Modeling in Support of Reservoir Operations	4
□	8am—12pm	**Short Course 16.** Natural Infrastructure Design for Riverine Environments	4
□	8am—12pm	**Short Course 17.** Data driven support of resilience decision making: US Army Corps of Engineers climate preparedness tools, data, and approaches	4
□	8am—12pm	**Short Course 18.** Risk and Uncertainty Principles for Flood Control Projects	4
□	8am—12pm	**Short Course 19.** Reservoir Sedimentation Monitoring and Prediction	4
Total for Field Trips or Short Courses Attended on Friday, May 12th (4 maximum):			
Total PHDs for entire SEDHYD Conference, May 8—12th (30 maximum)			

SEDHYD 2023 Conference

THIS IS TO CERTIFY THAT

Has successfully completed continuing professional development hour for attending the **Federal Interagency Sedimentation and Hydrologic Modeling Conference,** including any short courses or field trips

St. Louis, Union Station Hotel, St. Louis, MO

May 8—12, 2023