Society of SAME American Military Engineers

DAM & LEVEE RESILIENCE WEBINAR SERIES

Private Sector
October 6, 2022

9:00 **Welcome**
Keynote Speaker and Moderator: Ms. Sharon Roach, Senior FERC Dam Safety Engineer, Mead & Hunt

9:10 **Hurricane Katrina and Its Impacts on Levee Engineering**
Dr. Franz Campero, MEC International

9:40 **Geotechnical Evaluation of California's Central Valley Urban Levees**
Mr. Rich Millet, AECOM

10:10 **Break**

10:20 **Sacramento-San Joaquin Delta Levee Projects and People**
Mr. Gilbert Cosio, River Delta Consulting

10:50 **Focus on Emergency Preparedness**
Mr. Bill Foos, Gannett Fleming

11:20 **Break**

12:00 **Flood Risk and Consequences**
Ms. Joanna Leu, HDR

12:30 **Unique Aspects of Flood Control Dams**
Mr. Tom MacDougall, RJH

1:00 **Break**

1:10 **Lower Baker Dam Leakage Mitigation**
Mr. Robert Romocki, Shannon & Wilson

1:40 **Sediment and Resilient Water Projects**
Dr. Blair Greimann, Stantec

2:20 **An Overview of Dam Removal: Drivers, Trends, Guidance Documents, and Funding Resources**
Dr. Steve Clayton, Jacobs Engineering Group

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Private Sector Schedule
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9:00 Welcome
Keynote Speaker and Moderator: Ms. Sharon Roach, PE, Senior FERC Dam Safety Engineer, Mead & Hunt

Introduction to the day's events and housekeeping notes.

9:10 Hurricane Katrina and Its Impacts on Levee Engineering
Mr. Franz Campero, PhD, PE, MBA, LLM, Managing Principal, MEC International

The levees protecting New Orleans were not built to survive the most severe hurricanes. It was a well-known and repeatedly documented fact that a severe hurricane could lead to overtopping or breaching of the levees. This presentation explores the circumstances that led to the Hurricane Katrina disaster, and discusses the lessons learned from the author's personal work and involvement in the design and reconstruction efforts.

9:40 Geotechnical Evaluation of California's Central Valley Urban Levees
Mr. Rich Millet, PE, GE, Senior Principal Engineer, AECOM

The presentation addresses DWR's urban levee evaluation program and discusses the approach, implementation, and outcome of this major 9-year flood risk reduction project for urban centers in the Central Valley of California.

10:10 Break

10:20 Sacramento-San Joaquin Delta Levee Projects and People
Mr. Gilbert Cosio, PE, President, River Delta Consulting
The role of district engineer for Delta reclamation districts involves much more than engineering levee projects. Rather, the uniqueness of Delta levees, and the farming communities and people that they protect, requires a much closer relationship than the normal engineer/client relationship.

10:50 Focus on Emergency Preparedness
Mr. Bill Foos, Vice President, Gannett Fleming

The presentation will describe elements related to emergency preparedness, management, and emergency operations of dams and levees. Sharing some lessons learned from the Oroville spillway incident of 2017.

11:20 Break

(continued on next page)

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12:00 **Flood Risk and Consequences**

Ms. Joanna Leu, PE, Senior Water Resources Engineer, HDR

Risk analysis includes evaluation of a changing flood hazard, a system's performance, exposure within the area, and the vulnerability of the people and property. Life risk focuses on an identified area given a specified climate condition, land use condition, population, warning system, and flood management system. The consequences are fatalities, which may occur in a building or vehicle during evacuation from the floodplain. Life risk results can inform decision makers to invest in projects benefiting public safety as well as economic development. USACE's Risk Management Center (RMC) LifeSim is a state-of-the-art flood life loss and direct damage estimation software. Model development and use of life risk results will be discussed.

12:30 **Unique Aspects of Flood Control Dams**

Mr. Tom MacDougall, PE, Principal Engineer, RJH Consultants, Inc.

Flood control dams often face unique loading conditions and performance requirements. This presentation will provide information and considerations about the unique aspects in the design, inspection, and maintenance of flood control dams.

1:00 **Break**

1:10 **Lower Baker Dam Leakage Mitigation**

Mr. Robert Romocki, PE, Senior Dam Safety Engineer, Shannon & Wilson

The Lower Baker Dam, a hydro power facility is owned and operated by Puget Sound Energy. Since its construction in the 1920s, the dam has had significant leakage through its abutments and foundation. This presentation will provide a brief history of the project and the current measures being taken to minimize dam safety concerns.

1:40 **Sediments and Resilient Water Projects**

Mr. Blair Greimann, PhD, PE, Water Resource Team Lead, Stantec

Sediment is present in all natural watercourses, but often has not been held in high regard. In reservoirs, the typical practice is to trap sediment and tolerate gradual storage reduction. In river systems, suspended sediment is often considered a pollutant. In coastal areas, the supply of sediment to deltas has historically not been considered in flood control and navigation projects. In this presentation, he will state the value of term sediment management plans to extend the useful life of our reservoirs, improve our riverine habitats, and sustain our coastal flood protection. Case studies of large-scale sediment management are presented from Dam Removal, Reservoir Sedimentation, and Coastal Flood Protection Projects.

2:20 **An Overview of Dam Removal: Drivers, Trends, Guidance Documents, and Funding Resources**

Mr. Steve Clayton, PhD, PE, Senior Technologist & Project Manager, Jacobs Engineering Group

Dam removal efforts continue to expand nationally to improve habitat, reduce safety risks, and replace aging infrastructure. This presentation will provide an overview of drivers and trends, resources (technical and funding), and examples of constructed projects designed by Jacobs.

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Ms. Sharon Roach, PE, Senior FERC Dam Safety Engineer, Mead & Hunt

Keynote Speaker and Moderator

Sharon Roach is a licensed civil engineer in California, Washington and Oregon. Her passions are in public safety, emergency preparedness, community resilience, public outreach, and dam resiliency. She specializes in dam safety operations, maintenance, inspections, and regulatory compliance. She has worked as a federal regulator, Deputy Chief Dam Safety Engineer, and consultant.

Hurricane Katrina and Its Impacts on Levee Engineering

Mr. Franz Campero, PhD, PE, MBA, LLM, Managing Principal, MEC International

Franz Campero's 30+ years of research and work experience span a wide range of subjects in the areas of water infrastructure and flood protection. He has worked on nearly 100 dams, and thousands of miles of levees worldwide. He currently provides technical leadership for several major water, tunneling and mining projects. Franz has been involved in multiple high-profile levee projects, including the Katrina Levee Reconstruction Design, the California Urban and Non-Urban Levee Evaluations, the Fargo-Moorhead Area Diversion Project, and the South Florida Stormwater Treatment Areas.

Franz leads the engineering group at MEC International, an SBA award-winning Federal and State certified small business.

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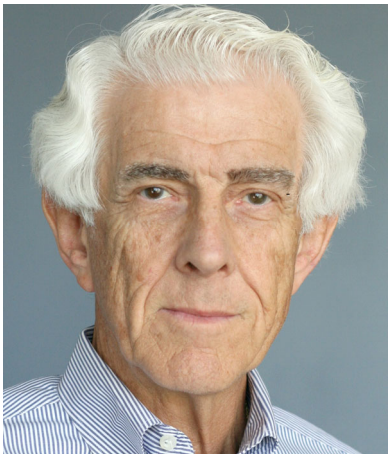
Geotechnical Evaluation of California's Central Valley Urban Levees

Mr. Rich Millet, PE, GE, Senior Principal Engineer, AECOM



Rich Millet is a leader in AECOM's National Levee Practice and Principal Geotechnical Engineer in the Sacramento office. His expertise includes hydrology, geotechnical engineering, hydrogeology, geology, seismology, earthquake and dynamic engineering, geostatistics, field instrumentation, and construction management services. His studies for dams, levees, tunnels, and flood retention structures have included establishing geotechnical, geologic, and hydrologic design criteria; evaluation and selection of alternative dam site and levee and tunnel alignments; establishing field exploration of foundation conditions and potential borrow sources; evaluation and utilization of potential borrow sources; evaluation of embankment and foundation seepage and stability conditions; design of embankment sections; design of spillway and appurtenant structures; and design review and inspection during construction. His experience includes assessment, remedial design and new design of over 1,000 miles of levees and canals in California and the planning, design and construction oversight of 100 dams worldwide ranging in size from 65 to 500 feet, typically in excess of 100 feet.

Rich led the AECOM nine-year program supporting DWR's Urban and Non-Urban Levee evaluation programs, and continued on supporting DWR's response to levee damage resulting from the Central Valley 2017 flood event by leading the design and remedial construction of over 70 damaged "critical" and "serious" levee segment.

Sacramento-San Joaquin Delta Levee Projects and People

Mr. Gilbert Cosio, PE, President, River Delta Consulting

Gilbert Cosio is the principal of River Delta Consulting. His 42-year career includes experience in flood control, hydrology, hydraulics, water resource planning, drainage, water supply and levee maintenance. For the past 39 years he has been involved with the Sacramento-San Joaquin Delta levees and channels and through his career has been the district engineer for 45 reclamation districts in the Sacramento-San Joaquin Delta.

He has represented delta levee, water supply, and landowner interests on a number of committees over the years including the Delta Vision Stakeholder Coordination Group, the Delta Risk Management Strategy Steering and Technical Committees, the Delta Levee Habitat Advisory Committee, the CALFED Delta Levees & Channels Technical Team, the CALFED Levees Seismic Sub-Team, the Delta In-Channel Islands Work Group, the CALFED Suisun Marsh Levees Sub-Team, the Lower Yolo Bypass Planning Forum, the Delta Conservancy Delta Dialogues Stakeholder Group, the Delta Stewardship Council Delta Climate Change Vulnerability Assessment and Strategy TAC, and the Delta Conservancy Delta Salmon Rearing Habitat Study Advisory Group.

Gilbert received a B.S. in Civil Engineering from Santa Clara University, and completed coursework for an M.S. in Civil Engineering at U.C. Davis.

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Focus on Emergency Preparedness

Mr. William (Bill) Foos, CPP, PSP, Vice President/Director, Gannett Fleming

Bill Foos currently services on the Board of Directors for USSD, and is the past Chair of the United States Society of Dams' committee on Public Safety, Security, and Emergency Management for Dams from 2015-2021. He is currently the US delegate of the International Commission on Large Dams (ICOLD) committee on Public Safety on Dams. Bill was the project lead for the after-action study of the California Department of Water Resources activated Emergency Action Plan of the February 2017 Oroville Dam Spillway incident. He holds a Master of Business Administration from Campbell University, North Carolina; and a Bachelor of Arts Degree in Business Administration and minor in Military Science from the University of Nebraska. He is a retired Lieutenant Colonel, US Army Reserves, and a Bronze Star awardee.

Flood Risk and Consequences

Ms. Joanna Leu, PE, Senior Water Resources Engineer, HDR

Joanna Leu is a Senior Water Resources Engineer at HDR, working in the Sacramento, CA office. She has B.S. and M.S. degrees in Civil and Environmental Engineering from the University of California at Davis. Joanna is a registered Professional Engineer in the state of California with over 20 years experience in diverse complex water resources planning and modeling projects. In that time, she has worked for HDR and David Ford Consulting Engineers, also in Sacramento, CA. She has extensive experience in flood risk management and planning, including risk analysis, risk communication, and flood consequence analysis. Her additional expertise includes channel hydraulic modeling, dam break analysis and mapping, watershed hydrologic analyses, reservoir operation modeling, climate change analyses, and project planning and prioritization using risk-informed processes.

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Unique Aspects of Flood Control Dams

Mr. Tom MacDougall, PE, Principal Engineer, RJH Consultants, Inc.

Mr. MacDougall is a geotechnical engineer with 22 years of experience as a consulting engineer. During the first three years of his career, he worked on various types of geotechnical projects in the San Francisco Bay Area and the Sacramento and Central Valley Areas. Then, he had the opportunity to work as the staff engineer on one of Faiz Makdisi's dam rehabilitation projects north of Santa Rosa. Since that time, Mr. MacDougall has continued to specialize in dam engineering. In fact, for the last 17 years, more than 90 percent of his project work has been engineering for dams. He has worked on more than 120 dam safety and dam design projects, including recently serving as the chief design engineer for the Folsom Dam Raise Project, Dikes 1-6.

Lower Baker Dam Leakage Mitigation

Mr. Robert Romocki, PE, Senior Consultant (Dam Safety Engineer), Shannon & Wilson

A graduate of Cornell University with a BS and MENG degrees with over 40 years in the "Dam Business", Robert began his career working for the NRCS in Minnesota, holding a number if different positions. His work involved site investigation, designing and overseeing construction on projects ranging from small farm ponds to high hazard multi-purpose dams. After 30 years in MN, Robert made a career change, accepting a position as the Dam Safety Program Manager for USACE, Seattle District. He was responsible for 6 high hazard dams, including Chief Joseph Dam on the Columbia River, the second-greatest hydro power producing dam in the US. He retired from the USACE in 2012, moving to private sector as the Chief Dam Safety Engineer for Puget Sound Engineer. Robert "retired" from PSE in March of 2020, and began working for Shannon & Wilson on a part-time basis, where he is employed today.

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Sediment and Resilient Water Projects

Mr. Blair Greimann, PhD, PE, Water Resource Team Lead, Stantec

Blair Greimann has 24 years of experience with sediment transport projects in rivers and reservoirs. His primary focus is the analysis of sediment transport resulting from dam removal, river restoration, water diversion, 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, 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 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 for domestic and international engineers.

An Overview of Dam Removal: Drivers, Trends, Guidance Documents, and Funding Resources

Mr. Steve Clayton, PhD, PE, Senior Technologist and Project Manager, Jacobs Engineering Group

Steve Clayton, PhD, PE, leads Jacobs' River Systems Science and Engineering Team (RSSET) Community of Practice, focused on dam removal and river restoration projects. His dam removal project experience includes removal of two Chattahoochee River dams (City Mills and Eagle-Phenix) for US Army Corps of Engineers and Hogansburg Dam on the St. Regis River (New York) for the Saint Regis Mohawk Tribe. Currently, he is providing senior review on designs to remove 11 Mile Diversion Dam on the South Platte River (Colorado) and Pelham Lake Dam on the Hutchinson River (New York). Steve's educational background includes degrees in human biology, riparian ecology, and biological and agricultural engineering. He has co-authored seven peer-reviewed journal and book articles, including two papers describing a synthesis of U.S. river restoration efforts and standards for ecologically successful river restoration and a recent publication documenting physical responses to a stream restoration project 15 years following construction.

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UPCOMING WEBINAR SERIES EVENTS

Early 2023

We are working to add an in-person fourth session. Details will be available soon.

PREVIOUS EVENTS

Federal Government

Did you miss the May 26 federal government webinar? Watch any time, now available on demand with your paid multiple-webinar registration!

Local Government

July's local government webinar is now available on demand with your paid multiple-webinar registration!

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