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From the Director's Desk

"These are the times that try men's souls". Thomas Paine

These truly are difficult times that we live in, for both our state and our nation. The major issue for the WRRI is the financial uncertainty caused by the gridlock in Washington. Our parent organization, the USGS, is facing significant budgetary stress due to the sequestration. As a result, the annual base grants provided to each state through the 104(b) program has been reduced by 40%. This means that we will be unable to fund one of our three research projects scheduled to begin March 1. We hope these funds will be restored later in the year.

The budgetary reductions will also be felt at our annual

conference in April. The sequestration has forced many federal agencies to reduce or eliminate non-essential travel. As a result, our USGS partners will be unable to attend, even though the conference will be held in Jackson. We had also hoped to have some EPA Region 4 staff attend our conference, but they had to cancel as well.

On a more positive financial note, the WRRI did see one support budget increased. The State of Mississippi normally provides matching funds for federal grants. For FY 2013 these funds were increased from \$120,531 to \$180,531, almost a 50 % increase. This year we invested most of the increase in REACH, a farmer led initiative being directed by Dr. Robbie Kröger. The WRRI



funds will be used to leverage other external funding.

When we send out the next newsletter I hope to have more positive news. We hope that the federal funds will have been restored. We hope to be able to maintain our current state funding levels. And we currently have three initiatives in the works that could have major implications for the WRRI. Stay tuned.

Wayne

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Congratulations to Dr. Jairo Diaz Ph.D.

Dr. Diaz recently assumed the position of Director of the Mississippi River Research Center (MRRC), located at Alcorn State University. The MRRC was created in the mid-1990s to combine and integrate research, teaching, and outreach in agriculture, applied sciences, environmental studies, advanced technologies, and

human sciences. The MRRC mission is to advance knowledge in preservation, conservation, and improvement of water quality while balancing economic and environmental impact. The MRRC provides capabilities in sustainable watershed management, soil & water quality laboratory analysis, and watershed assessment & modeling.

2013 USGS 104b Funded Projects

“Interdisciplinary Assessment of Mercury Transport, Fate and Risk in Enid Lake, Mississippi”

Dr. Xiaobo Chao
Senior Research Scientist
NCCHE
The University of Mississippi (UM)
University, MS 38677

Dr. James V. Cizdziel
Assistant Professor
Dept. of Chemistry
UM

Dr. Kristie Willett
Associate Professor
Dept. of Pharmacology
UM

Dr. A.K.M. Hossain
Research Scientist
NCCHE
UM

“Non-linear downward flux of water in response to increasing wetland water depth and its influence on ground-water recharge, soil chemistry, and wetland tree growth”

Dr. Gregg Davidson, Professor
Department of Geology and Geological Engineering
The University of Mississippi
University, MS 38677

“Identification of Recharge Zones in the Lower Mississippi River Alluvial Aquifer Using Isotopic Characterization of Perception and Groundwater”

Dr. Jamie Dyer, Associate Professor
Department of Geosciences
Mississippi State University
P.O. Box 5448
Mississippi State, MS 39762

Dr. J.R. Rigby
Research Hydrologist
USDA-ARS

Change of Leadership at the Mississippi Water Science Center

Good-Bye Mickey, Hello Scott

Mickey Plunkett, former Director of the Mississippi Water Science Center, retired at the end of 2012. Mickey began his career as a cooperative education student on January 2, 1974. Upon graduation from Mississippi State University in 1980 he was hired by the Mississippi District as a civil engineer. After working in both the Studies and Data Sections he was promoted to Chief of the Surface Water Records Unit in 1985. He was selected as the Data Section Chief in 1990. Since being selected to be the Director of the Mississippi Water Science Center in 2001 Mickey represented the Region on various national efforts and has been a representative of the agency in Gulf of Mexico issues and organizations while overseeing operations in Mississippi. Most recently he was selected to represent flood issues on the Science Strategy Planning Team for the USGS Hazards Mission Area. He retired after 37 years of service.

Scott Gain will serve as the interim Director of the Center. Scott has been the Director of the Tennessee Water Science Center for the last 15 years and has worked for the USGS for more than twenty eight years. He started with the USGS as a project chief in Fort Worth, Texas and subsequently worked as project chief and Data Chief in Orlando, Florida before moving to Tennessee. He holds a Master's in Forest Hydrology from the University of Florida, a BS in environmental science from Richard Stockton College of New Jersey and taught as a U.S. Peace Corps volunteer at Pampanga Agricultural College in the Philippines for two years before joining the USGS. Scott's technical experience with the USGS has included studies of hydro-acoustics, storm-water mitigation, nutrient loading to lakes, Karst wetland hydrology, salinity mixing in estuaries, and ecological flow requirements. In his time as Director for Tennessee Scott has also served on numerous Bureau committees and review teams and served for short periods as Acting Director for Alabama and Program Officer for the SEA. Scott will continue serving as the Tennessee Water Science Center Director while taking on the interim assignment in Mississippi.

2013 Mississippi Water Resources Conference

Water, Sustainability, and Climate

April 2-3, 2013



Mississippi is fortunate to currently have plentiful supplies of clean water. However, potential problems loom on the horizon. The Mississippi Water Resources Conference provides a forum for the water resources community to discuss these complex water issues facing our state, region, and nation. Research findings and applications from state and federal agencies, as well as colleges and universities, will be shared with conference attendees.

Scheduled for April 2-3 in Jackson, MS, this year's conference promises to be an exciting event. This will be the water conference you will not want to miss, with exciting presentations and keynote speakers, as well as a panel forum comprised of representatives from MDEQ who will share insight into water quality and quantity issues. Poster sessions will showcase student work, and exhibitors from the private and public sectors will be in attend-

ance.

Location - Jackson Hilton, Jackson, MS

The conference will be held at the Jackson Hilton, in Jackson MS. Reservations may be made by phoning 1-601-957-2800. Mention group code "WATER" to receive the special group rate.

Luncheon Speaker Tuesday April 2

Mr. Ben Scaggs - Director
U.S. EPA Gulf of Mexico Program

Luncheon Speaker Wednesday April 3

Dr. Robert Watts - Professor Emeritus
Tulane University

Technical Sessions

- 1 Water Resources Protection & Management
- 2 Surface Water Quality #1
- 3 Nutrient Reduction & Management #1
- 4 Watershed Assessment & Management
- 5 Stormwater Assessment & Management
- 6 Aquatic Ecosystems
- 7 Delta Hydrology
- 8 Monitoring & Modeling: Pearl River Basin
- 9 Surface Water Assessment & Monitoring
- 10 Irrigation Practices & Management
- 11 Nutrient Reduction & Management #2
- 12 Surface Water Quality #2



Visit our Web site at www.wrri.msstate.edu or contact Jessie Schmidt at 662.325.3295 for more conference details.

Current WRRRI Supported Research and Outreach Projects

Project: Research and Education to Advance Conservation and Habitat (REACH)

- The REACH program goal is to create a network of cooperative farms in Mississippi to illustrate the success of conservation practice implementation on landscape stewardship.
- Currently, REACH has enrolled 32 Mississippi farms in the program. They are located in 20 counties, and total over 100,000 acres.
- During FY 2013 the WRRRI committed \$50,000 in matching funds to help REACH leverage over \$300,000 in other funding. The funds were used to support one MSU graduate student, match the purchase of field monitoring equipment, and provide building materials for students to construct wooden structures to house field data collecting equipment. The student project will be completed at Hinds Junior College.



Project: MDEQ/EPA 319 Rotten Bayou Project



Rotten Bayou is a coastal watershed located in Hancock County, Mississippi covering approximately 35 square miles. The bayou drains into the Bay St. Louis, which later drains into the Gulf of Mexico. This area is under pressure from population growth, urbanization, and agricultural practices such as cattle farming. The watershed has been identified by the Mississippi Department of Environmental Quality (MDEQ) as having impairments such as low dissolved oxygen, turbidity, and excessive nutrient loads.

The WRRRI, with the assistance of faculty in the Department of Landscape Architecture, has a contract with MDEQ to assist the newly formed town of Diamondhead identify structural and non-structural Best Management Practices that will help improve water quality in Rotten Bayou. The Institute committed \$5,000 in state matching funds to help secure a \$98,000 grant that has design and policy implications for the entire Mississippi Gulf Coast metropolitan area.

Project: USGS 104b Annual Competitive Grants



Annually the WRRRI receives federal funds from the U.S Geological Survey to support water related research. During FY 12 and FY 13 a total of six research projects were funded. Three projects were funded at MSU and three at UM.



WRRRI Spring 2013 Profile

Researcher: Dr. Cristiane Q. Surbeck, Assistant Professor of Civil Engineering, University of Mississippi

Tell us a little about your background and your current faculty position.

I have a degree in civil engineering from Maryland and graduate degrees in environmental engineering from the University of California, Irvine. I worked for an environmental engineering consulting firm in southern California for almost 8 years when I decided to plunge into academia and go for a PhD and then a professor position. I'm in my sixth year in a tenure-track position and it's been a whirlwind of activities. I've developed courses in water resources and environmental engineering, incorporating my experiences from consulting, from my research, and even sometimes from my experience growing up in Brazil. My pride and joy when it comes to teaching is the service-learning course that I developed on drinking water treatment. For this course I've partnered with the organization Living Waters for the World, which has a facility in Oxford, and my students help research and test their prototype water treatment systems for communities around the world in need of clean water. A big highlight of the last year was my trip to Togo, Africa, with Engineers Without Borders, when we struck an agreement with a rural village to build a school together (pictured). My research projects have also spanned a wide variety. I try to collaborate with as many partners as I can so we can maximize our resources. So far I've had projects with the USDA National Sedimentation Laboratory, the National Center for Physical Acoustics, the US Geological Survey, EarthCon, and other universities. Even in service I try to connect to my teaching and research. For example, I'm a member of the Institutes for Higher Learning (IHL) Energy Management Council, where we are informed of energy saving measures taken by the Mississippi public universities. Again, this is information that I can relay to my students and use in research someday.



What are your current research activities?

Jim Chambers (UM Mechanical Engineering) and I have a project funded by the MWRRRI to develop an acoustic device to monitor fine suspended sediments in surface waters. On a very different subject, I'm working with a graduate student on a financial model for public-private partnerships in water infrastructure. We're looking at capital and operation and maintenance costs of existing infrastructure in Mississippi and seeing how the public and private sectors could benefit if they become partners in funding those projects. We've had some help on this one from the World Bank, MSU Extension, and the Mississippi Department of Health. Another project I have is in collaboration with the USGS and the MDEQ. We're looking at determining sources of fecal bacteria, which are indicators of pathogens, in the Ross Barnett Reservoir. On another very different note, I'm on the steering committee of a research network funded by the National Science Foundation on defining and assessing social sustainability in the domains of water, food, and health. This is a multidisciplinary team from the social sciences, humanities, and engineering.

How does the Water Resources Institute fit into your future plans? How can we help you to be successful?

The Water Resources Institute has already been a fantastic connection to water researchers in the state of Mississippi. Networking at the annual conference and receiving research funds from MWRRRI are how I've become versed on the state's water infrastructure and how I can impart knowledge to students who will also work on state water issues. Through the Institute I've also learned what are the state's primary water concerns. I think the Institute should continue to connect the enthusiastic water professionals in the state so we can continue to take steps to solve some of these very complicated problems.



The Water Resources Research Institute (WRRRI):

- ◇ Was designated by the legislature as a state research institute.
- ◇ Provides training and educational opportunities for K-12 students as well as those in higher education.
- ◇ Communicates research findings through conferences, workshops, and other engagement opportunities.



The Institute acts as a clearinghouse for:

TOYOTA moving forward

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

YMD YAZOO MISSISSIPPI DELTA JOINT WATER MANAGEMENT DISTRICT

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

USGS science for a changing world

UNITED STATES ACADEMY OF ENVIRONMENTAL PROTECTION

MISSISSIPPI WATER RESOURCES ASSOCIATION

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