



CODE: SP1

TITLE: Snapshot of the Louisiana Watershed Initiative

The Louisiana Watershed Initiative (LWI) was established by Gov. Edwards in 2018 to serve as a coordinated, interagency structure at the state level for watershed-based flood risk reduction efforts. The LWI program activities include: (1) establishing statewide regional watershed boundaries, (2) forming Regional Watershed Coalitions to conduct watershed management, (3) funding flood risk reduction structural and nonstructural projects, and (4) developing hydrologic and hydraulic watershed models to analyze data in real time to guide planning, policy, and project decision-making. In September 2020, the U.S. Department of Housing and Urban Development signed a grant agreement with Louisiana establishing a \$1.2 billion line of credit in CDBG-Mitigation funds for priorities outlined in the state's Action Plan. During the first year of implementation, the LWI awarded over \$450M in flood risk reduction projects including over \$87M in residential buyouts in neighborhoods that repeatedly flood. Attendees of this session will learn more about four major ongoing components of the Louisiana Watershed Initiative: (1) the current Legislative package up for deliberation in the Louisiana Legislature that has the potential to enable a statewide framework for watershed management, officially stand up Regional Watershed Coalitions (RWC's), and enact consistent mitigation standards across five state agencies; (2) the Nature-Based Solutions Program's "Working with Nature Training Series" that's educating local public officials and stakeholders about the design and development process of nature-based flood mitigation projects and an NBS Explorer Tool that will be used to quantify benefits, measure performance, and justify investment in such projects; (3) the Council on Watershed Management's approval of a long-term watershed Model Use, Storage and Maintenance Plan that ensures statewide consistency in watershed planning, policy, and projects; and (4) the nonstructural Statewide Buyout Program that's assisting homeowners in seven flood-prone communities relocate to safer and higher ground.

CODE: SP2**TITLE:** Planning for Sustainable Irrigation – Agricultural Security, Environmental Considerations, and Rural Communities

Maintaining a safe and abundant food supply is critical for national security. Sustaining water quality and quantity for preservation of ecological and societal functions is equally important. Although the Southeast enjoys more annual rainfall than most of the U.S., it experiences periodic droughts and the variable rainfall distribution throughout the year that poses challenges to agriculture. In Alabama, agriculture is further impacted because of relatively poor water holding soils and limited irrigation. The opportunity and need for sustainable irrigation expansion and resource conservation in water rich states such as Alabama has been identified as a priority in stakeholder listening sessions. The USDA Natural Resources Conservation Service (NRCS), Alabama Soil and Water Conservation Committee, Auburn University, University of Alabama in Huntsville, and Alabama Cooperative Extension System promote sustainable irrigation expansion through the NRCS PL-566 Watershed Planning Program and Conservation Innovation Grants (CIG) focused on irrigation technology adoption and conservation practices. This session outlines a holistic, sustainable approach to expanding irrigation that minimizes environmental impact and reduces risk of resource damage to crops.

CODE: SP3

TITLE: Enhancing collaborative paleohydroclimate research in the southeastern US

This panel session will focus on current and future efforts of interdisciplinary paleoenvironmental (particularly paleohydroclimatic) researchers in the southeastern US to enhance collaborative research in the region. Panel participants will discuss an agenda for development of a region-wide group focused on collaborative research as well as joint efforts to develop and enhance regional instrumentation and facilities relevant to our work. Specific topics of discussion will include collaborative submission of requests for paleoenvironmental research funding including potential regional shared instrumentation grants, as well as enhancing access to available instrumentation and infrastructure across institutional networks. The southeastern US, including the Atlantic Gulf Basin and thousands of natural lake systems, is a critical but understudied region in terms of paleohydroclimate (including coastal processes) in North America, but many paleoenvironmental researchers in this region lack access to networks as well as instrumentation and facilities common in other regions of the country.



CODE: SP4

TITLE: Modeling and Predicting Future Water Resources Risk: Uncertainty and Future Scenario Development

The exact details of future conditions are unknown and thus uncertain. Evaluation of future risk to water resources requires representation of these uncertain conditions including future climate, land use, and economic development. This session provides examples and case studies of modeling and predicting future water resources and of explicitly describing future risks while accounting for the uncertainty inherent in future conditions.



CODE: SP5

TITLE: The Cities of Tomorrow with the Infrastructure of Yesterday

A significant portion of the extensive water infrastructure in the United States has already reached or is about to reach the end of its service life. Pipes, pumps, treatment plants, and dams in some regions are 50 to 100 or more years old, and some are failing with increasing frequency. At the same time, many communities are seeking to attract cutting-edge technology and business and increase their resiliency in the face of global change. What innovative tools and approaches can help our industry modernize 20th century infrastructure for 21st century cities? This session could include discussion of the diverse impacts of aging infrastructure; robust efforts to retrofit or replace; risk assessment approaches; asset management; innovative funding mechanisms; or other aging infrastructure case studies.



CODE: SP6

TITLE: The Water Industry's Role in Greenhouse Gas Mitigation

The water sector consumes a lot of energy and produces a lot of greenhouse gas emissions. Much of what countries are challenged with these days is climate change adaptation much more so than mitigation. Some of this is politically driven, and some of it is driven by the practicality of mere need to respond to protect property and human life now. But we need to redirect the conversation to include mitigation measures alongside adaptation measures. What mitigation measures are, or will be, significantly important to the water industry? And what is the water industry's role in mitigating greenhouse gas emissions? And how is climate change shaping (and has perhaps already shaped) what needs to happen with the water/energy nexus if we are see a truly sustainable future?



SPRING CONFERENCE SPECIAL SESSION DESCRIPTIONS

CODE: SP7

TITLE: Calculating the water storage required to mitigate landuse change in the Lower Fox River Basin, Wisconsin



CODE: SP8

TITLE: Ag Runoff Treatment Systems, an innovative BMP to mitigate the impacts of lost water storage due to landuse change in the Lower Fox River Basin, Wisconsin

The Lower Fox River Basin is one of the highest loading basins in regard to nutrients and TSS discharging to the Great Lakes. This can be attributed to the dominant agricultural and urbanized landuses; which results in polluted non-point source runoff, severe streambank erosion, and flooding. This presentation will highlight Ag Runoff Treatment Systems (ARTS), a BMP developed to address the aforementioned impacts resulting from lost storage of water on the landscape due to land use change. The general concept of an ARTS is a treatment train approach that utilizes existing NRCS Standards along with urban stormwater methodology, resulting in a BMP that addresses multiple resource concerns at one site. Four examples of ARTS were installed with an EPA GLRI grant, with two installations having mass balance USGS monitoring of Phosphorus and TSS. This presentation will discuss the methodology, the USGS monitoring results, and the next steps for implementation.



CODE: SP9

TITLE: Extreme events—big problem, little data: how natural records can improve prediction of extremes and aid climate resiliency efforts in water systems

Many water professionals are asking whether extremes (hurricanes, droughts, and large floods, for example) will become the ‘new normal.’ Rainfall is becoming more intense across the U.S.¹, hurricanes more destructive², and extreme floods predicted to occur more frequently³. However, accurate forecasts of extreme events are hamstrung by too few observations. Climatological drivers of extremes can operate on centennial and millennial timescales, leaving these events underrepresented in instrumented records that are relied upon for forecasting. Compounding the issue is human modification of land cover, which overlaps with the period of instrumentation, making it challenging to use instrumented records to isolate climatological drivers of environmental changes from human induced changes to surface hydrology. Fortunately, many water systems are naturally recording systems; meaning they preserve physical and chemical evidence of past environmental (ecological, hydrological, and climatological) changes, and their records are long—centuries to millennia. Increasingly, natural records are being applied to extreme event prediction in river systems to anticipate extreme floods⁴ and droughts⁵, but their application is largely confined to the western U.S. Enormous potential exists to expand the use of natural records in water resource management and climate adaptation to other extremes, such as hurricanes and harmful algal blooms, and to geographically broaden their application. Research presented in this session will demonstrate the use of natural records of environmental change from lacustrine, coastal, and riverine environments for the purpose of assessing and preparing for extreme events in water systems of the eastern U.S.



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SPRING CONFERENCE SPECIAL SESSION DESCRIPTIONS

CODE: SP10

TITLE: Scoring Water Resilience on the Institutional Scale for an Innovative Future



SPRING CONFERENCE SPECIAL SESSION DESCRIPTIONS

CODE: SP11

TITLE: National Water Model: Opportunities and Challenges in Continental-Scale Water Prediction

we think there is potential for two sessions to fill on this topical theme. In which case, there would be multiple sessions titled, “Extreme events-big problem, little data.... Session 1” and “Extreme events-big problem, little data.....Session 2.”