

F. Ryan Clark, PG

Geologist

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Education

M.S. in Earth and Environmental Science, May 2003
Tulane University, New Orleans, Louisiana

B.S. in Geology, May 1996
Louisiana State University, Baton Rouge, Louisiana

Technical Experience:

Water resources, estuarine and riverine systems, ecosystem restoration, and flooding.

Professional Experience:

The Water Institute of the Gulf	2013-Present
<ul style="list-style-type: none">• <i>Research Scientist</i>	
ARCADIS	2006-2013
<ul style="list-style-type: none">• <i>Project Scientist</i>	
Louisiana Department of Natural Resources	2004-2006
<ul style="list-style-type: none">• <i>Geologist III</i>	
Environmental Resources Management	2003-2004
<ul style="list-style-type: none">• <i>Geologist II</i>	
Tulane University Department of Earth & Environmental Science	
<ul style="list-style-type: none">• <i>Graduate Fellow</i>• <i>Research Technician</i>	1999-2003 1998-1999

Recent Projects:

Louisiana Water Resources Assessment for Sustainability and Energy Management

Louisiana Department of Natural Resources-Office of Conservation and Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana
Hydrology Lead

Developed a statewide system to gage the sustainability of water resources in light of present and projected uses, assessed water resources sustainability in selected water bearing units, described the process used to conduct the assessment, and recommended additional information needed to improve the accuracy and reliability of data used.

Prioritizing Additional Water Use Research for Louisiana

*Louisiana Department of Natural Resources-Office of Conservation, funded by the United States Geological Survey (USGS) Water Use Data and Research (WUDR) program
Principal Investigator*

Developed the work plan to facilitate planning for the implementation of this program. summarizes the selected approach for Louisiana's participation in the WUDR program, by providing a description of the current Louisiana water use program, including a summary of current water use research in Louisiana, with comparisons to national and regional reporting regimes and priorities; an outline of Louisiana's priorities for improving water use research, reporting, and data collection; and a list of steps proposed to address priorities, with respect to USGS baseline data goals and standards. This includes justifications, cost estimates, and individual work plans for the proposed projects.

Determining the Minimum Ecological River Inflow Needs of Louisiana Estuaries

*Charles Lamar Family Foundation, Baton Rouge, LA
Proposal Lead, Principal Investigator*

The Institute developed a novel use for the state of the art computer model that has previously been used to determine the hydrologic, ecological, and land change effects of Louisiana coastal restoration projects from the Coastal Protection and Restoration Authority (CPRA) Coastal Master Plan. This project adapted the model to determine the ecological needs of the wetlands, swamps, and estuaries that communities in the region rely upon for their economic and social well-being. It illustrates how variations in the flow of rivers such as the Amite can have effects on the suitability of habitats for key fish and wildlife species, as well as how it affects the distribution of marsh vegetation types over time. The methods developed in this pilot study can be adapted and used in communities across Louisiana and around the world. It leverages the investments and advancements made during the development of the Coastal Master Plan and adds additional value for local communities.

Geomorphic Changes to the Amite River Channel and Floodplain Induced by the August 2016 Flood in Louisiana

*National Science Foundation RAPID Program and the Charles Lamar Family Foundation
Project Conception, Co-Proposal Lead*

This effort, currently underway, aims to quantify the reshaping of the Amite River channel and its floodplain associated with the unprecedented flood of 2016. The objective is to conduct rapid response field operations in the mid and upper Amite Basin to gather data while the effects of the flood are undisturbed (high water marks and evidence of flow path and magnitude, sediment thicknesses and extents, grain size, etc.). These are critical to understanding (1) the geomorphic response to this event, (2) for ground truthing remote sensing imagery that were obtained and analyzed to document channel planform changes, and (3) to develop numerical models to analyze the event and predict morphological response to future events.

Project Implementation Support: Assessing the Cost of Land Creation Using Dredged Material

*Louisiana Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana
Principal Investigator*

Conducted research on the efficiency of dredging for coastal restoration. Oversaw junior researchers, and presented progress and findings at the 2014 Conference on Ecological and Ecosystem Restoration (CEER) and the 2014 United States Army Corps of Engineers – Mississippi Valley Division & Gulf Coast Regional Dredging Meeting.

Coastal Innovation Partnership Program

*Louisiana Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana
Principal Investigator*

Principal Investigator for the CPRA Coastal Innovation Partnership Program, which solicits innovations for use in implementing Louisiana's Coastal Master Plan. The program provides expert panel review of the innovations for technology readiness and applicability to the Master Plan. Managed scope, schedule, and budget, recruited expert reviewers, and wrote technical report.

Project Development & Implementation Program / Upper Barataria Risk Reduction – Rainfall

Louisiana Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana and Lafourche Basin Levee District

Principal Investigator

Principal Investigator for the Project Development & Implementation Program/Upper Barataria Risk Reduction Study. Managed the schedule, budget, and technical direction of a project with three subcontractors, which involved the innovative incorporation of rainfall into a suite of hydrologic and damage models to evaluate proposed coastal protection structural alternatives.

Atchafalaya Basin Sediment Management Plan

Louisiana Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana

Provided technical, database management, and GIS support for a project developing a comprehensive sediment management plan for the Atchafalaya Basin, the only region along the Louisiana coast that is currently experiencing land gain through deltaic formation. Served as the local liaison for data collection and stakeholder engagement on this project. Worked with individuals from federal agencies such as USGS and USACE, including the Engineer Research and Development Center (ERDC).

Storm Surge Modeling for the Louisiana’s 2012 Comprehensive Master Plan for a Sustainable Coast

Louisiana Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana

ARCADIS provided advanced storm surge modeling for the Master Plan. Duties included serving as local liaison to the Master Plan project team and as High Performance Computing Principle Investigator for the usage of LSU / Louisiana Optical Network Initiative (LONI) supercomputers utilized in the project.

Performed reviews of storm surge modeling results, and contributed to the hydrodynamic component of the final report.

Cat Islands Restoration

Plaquemines Parish, Louisiana

Associate Project Manager

Served as Associate Project Manager and project Geologist for this restoration project. These islands serve as critical habitat for shorebirds, including Brown Pelicans, Roseate Spoonbills, Ibis, and others. The islands have been rapidly eroding, losing this critical habitat. Duties include writing and negotiating the application process for the Coastal Use Permits, USACE Section 404 Permits, and State Land Office Class A Permits for both islands; as well as coordinating a consortium of multiple State agencies, Federal programs, Non-Governmental Organizations, corporations, and private landowners which are donating land, time, services, and funds for the effort.

USACE/FEMA LATX Joint Coastal Surge Study

USACE New Orleans District and FEMA Region VI

Co-Project Manager

Embedded full-time at USACE New Orleans District (MVN) Project Management Office from 7/2006 to 7/2011. Duties include: scope and budget creation and management for large, multi-agency, multidisciplinary, and multinational coastal surge study; daily management of 75 member Project team of engineers and scientists from USACE, FEMA, Academia, and the private sector; direct, daily coordination with USACE and FEMA management; coordinating with other agencies, including the Louisiana Coastal Protection and Restoration Authority (CPRA), NOAA, and others. Planned and attended public outreach meetings in every coastal county in Texas, and across coastal Louisiana.

Technical Writing Coordinator - Managing report writing for 75-member Project team. Duties include: coordination of writing effort from multiple technical writers from many disciplines; integration and editing of various report sections from different writers into single, cohesive reports; Production of FEMA Flood Insurance Study Technical Support Data Notebook, USACE Design Height Report, and other documents.

Technical Review Coordinator - Managing multi-level Technical Review process to comply with FEMA and USACE review guidelines. Duties include: creation of customized web-based review process to suit FEMA and USACE review requirements; recruitment and management of multidisciplinary teams of

experts for Quality Control/Quality Assurance, Independent Technical Review, FEMA Oversight Review, and an External Peer Review performed by the American Society of Civil Engineers (ASCE); coordination of comments and responses from 20 reviewers and approximately 30 technical writers; and creation and editing of Technical Review Reports for submittal to USACE, FEMA, and ASCE.

Louisiana Department of Natural Resources, Office of Conservation (December 2004 - March 2006)

Louisiana Abandoned Mine Land Program

Assistant Program Manager - Served as Assistant Program Manager for federally funded state program. Management activities consisted of reclamation construction projects including cost estimation and proposal writing; technical report preparation for submittal to US Department of Interior, Office of Surface Mining and Reclamation, as well as Louisiana Commissioner of Conservation; and GIS data management and graphic deliverable production.

Mine Safety and Health Administration State Grant Program

Assistant Program Manager - Served as Assistant Program Manager for federally funded mine worker safety training program. Managed instructors and staff to provide safety instruction to Louisiana miners. Federal grant management involved proposal writing, reporting to state and federal entities, and daily activities including managing employee payroll, and purchasing.

FEMA Joint Field Office

Liaison - Served as Energy Restoration liaison for State of Louisiana to FEMA Joint Field Office (JFO) in response to Hurricanes Katrina and Rita. Volunteered for reassignment of duties to FEMA JFO. Duties included working closely with US Department of Energy representative to collect and disseminate information concerning oil and gas resource capacity and production restoration. Wrote daily briefings, talking points for meetings, press conferences, and speeches, and responded to inquiries from other state and federal agencies and the general public.

Awards, Honors:

1. Innovation Award – Louisiana Innovation Month 2014. (Helped Institute secure award)
2. NASA Graduate Student Research Program Fellowship, 1999-2003
3. New Orleans Geological Society Graduate Student Scholarship, 2002
4. LSU Honor Scholarship, 1991-1995
5. New Orleans Geological Society Junior Scholarship, 1993
6. New Orleans Geological Society Sophomore Scholarship, 1992
7. Member, Sigma Gamma Epsilon, Earth Science Honor Society

Teaching Experience:

Introduction to Geology (Honors Lab), Tulane University

Professional Memberships:

President: Society for Ecological Restoration – Large-scale Ecosystem Restoration Section

Member, American Geophysical Union (AGU), Member since 2002

Member, American Society of Civil Engineers (ASCE - 287458), Member since 2008

Professional Registration:

Professional Geologist, Tennessee # TN4937

Professional Geologist, Louisiana #607

Committee Memberships:

Conference Co-Chair - National Conference for Ecosystem Restoration 2018

Planning & Program Committees – National Conference for Ecosystem Restoration 2016

American Society of Civil Engineers - Coasts, Oceans, Ports, and Rivers Institute – Louisiana Chapter

Community Services:

Our Lady of the Lake Children's Hospital:

Children's Miracle Mansion – Volunteer Prime Contractor (2007)

ARCADIS Fundraising Coordinator (2013)

Emerge Center for Communication, Behavior, and Development:
Volunteer Playground Builder (2014)

Training Courses:

- Water Institute Resources for Project Planning and Implementation – Instructor – 2015 & 2016.
- ARCADIS Quest – 2009 – The Netherlands. Delft 3D and Dutch flood protection training.
- ADCIRC Workshop – 2010 – ERDC, Vicksburg, MS.
- ARCADIS Fundamentals of Project Management - 2010 – 40 hour online training.

PEER REVIEWED PUBLICATIONS

1. Zach Cobell, Haihong Zhao, Hugh J. Roberts, F. Ryan Clark, and Shan Zou. Storm Surge and Wave Modeling for the Louisiana 2012 Coastal Master Plan (Publication). Journal of Coastal Research Special Issue, 2014.

CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. F. Ryan Clark, Scott A. Hemmerling, and Harris C. Bienn. A framework to assess ground and surface water sustainability in Louisiana. Data Flow 2016, Baton Rouge, LA
2. F. Ryan Clark, Scott A. Hemmerling, and Harris C. Bienn. A framework to assess ground and surface water sustainability in Louisiana. Louisiana Ground Water, Surface Water, and Water Resources Symposium 2016, Baton Rouge, LA
3. “Working with Coastal Partners” Panel – Propeller/Water Challenge, 2015, New Orleans, LA
4. “The Water Institute of the Gulf Innovation Program” - CEER 2014, New Orleans, LA
5. “An Analysis of USACE Beneficial Use Wetland Development Projects” – Mississippi Valley Division/ Gulf Coast Regional Dredging Meeting, 2014, New Orleans, LA
6. “Louisiana’s Coastal Innovation Partnership Program (CIPP): Incorporating Innovations into Project Implementation” – CERF 2013, San Diego.
7. F. Ryan Clark, Syed M. Khalil, Richard C. Raynie, Jeffrey Barry, Robert Daoust, Anu Acharya, Yvonne Allen, and Lamar Hale. Atchafalaya Basin Sediment Management Plan: Regional Sediment Management for Coastal Restoration and Impacts of Large Flood Events on Sediment Dispersal (Poster). Restore American’s Estuaries - National Conference on Coastal and Estuarine Habitat Restoration, Tampa, Florida. October 20-25, 2012.
8. F. Ryan Clark, Jeffrey Barry, Robert Daoust, Anu Acharya, Yvonne Allen, Lamar Hale, Michael Lowiec, and Syed M. Khalil. Impacts of Large Flood Events on Sediment Dispersal Patterns and Channel Migration: Atchafalaya River, LA (Presentation). State of the Coast Conference, New Orleans, Louisiana, June 25, 2012.
9. F. Ryan Clark, Hugh Roberts, Zach Cobell, John Atkinson, Shan Zou, and Mandy Green. Storm Surge and Wave Modeling for Prioritizing Coastal Restoration & Protection Projects (Poster). National Conference on Ecosystem Restoration, Baltimore, Maryland. August 1-5, 2011.
10. Clark, FR; Hugh J. Roberts; and John H. Atkinson. Storm Surge and Wave Modeling for Prioritizing Coastal Restoration and Protection Projects (Presentation). Solutions to Coastal Disasters Conference, American Society of Civil Engineers. Anchorage, Alaska, June 26-29, 2011.

11. Clark, FR and Cobell, Z. Three-Dimensional, Immersive Visualization of ADCIRC Hurricane Storm Surge Simulations (3D IMAX Presentation, Panelist). Digital Media & Software Development Industry-Academia Collaborative Workshop, Louisiana Board of Regents. Louisiana Immersive Technologies Enterprise (LITE) Center, Lafayette, Louisiana. June 14, 2011.
12. Clark, FR, W.H. Espey, Steve Fitzgerald, and Larry Voice. Historical Documentation and Validation for the FEMA/USACE Texas Hurricane Project-TX2010 ADCIRC Model (Presentation). Hurricane Ike: What Have We Learned and Steps for the Future? SSPEED Center Conference, Rice University, Houston, Texas. September 13, 2010.

TECHNICAL REPORTS

1. F. Ryan Clark, Scott A. Hemmerling, and Harris C. Bienn. Prioritizing Additional Water Use Research for Louisiana. Louisiana Department of Natural Resources-Office of Conservation. 2016.
2. F. Ryan Clark, Scott A. Hemmerling, and Harris C. Bienn. A framework to assess ground and surface water sustainability in Louisiana. Louisiana Department of Natural Resources-Office of Conservation and the Coastal Protection and Restoration Authority of Louisiana. 2016.
3. Clark, FR, Bienn, H, and Willson CW. Project Implementation Support: Assessing the Cost of Land Creation Using Dredged Material. 2015.
4. Willson, CW, Clark, FR. Coastal Innovation Partnership Program. Coastal Protection and Restoration Authority of Louisiana. 2014.
5. Clark, FR, Robert, HJ, and Johnson, DJ. Project Development & Implementation Program/Upper Barataria Risk Reduction. Coastal Protection and Restoration Authority of Louisiana. 2014.
6. Willson, CW, Clark, FR, Gilbert, R. Expert Panel Review: Greater New Orleans Hurricane and Storm Damage Risk Reduction System. Coastal Protection and Restoration Authority of Louisiana. 2013.
7. Barry, J., Acharya, A, and Clark, R. Atchafalaya Basin Sediment Management Plan. Louisiana Coastal Protection and Restoration Authority (CPRA), Baton Rouge, Louisiana. 2013.
8. Westerink, JW, Resio, D, Clark, FR, Roberts, H, Atkinson, J, Smith, J, Bender, C, Ratcliff, J, Blanton, B, Jensen, R. Flood Insurance Study: Coastal Counties, Texas. F. Ryan Clark, Editor, US Army Corps of Engineers, 2009.
9. Westerink, JW, Resio, D, Clark, FR, Roberts, H, Atkinson, J, Smith, J, Bender, C, Ratcliff, J, Blanton, B, Jensen, R. Flood Insurance Study: Southeastern Parishes, Louisiana. F. Ryan Clark, Editor, US Army Corps of Engineers, 2007.
10. Westerink, JW, Resio, D, Clark, FR, Roberts, H, Atkinson, J, Smith, J, Bender, C, Ratcliff, J, Blanton, B, Jensen, R. Flood Insurance Study: Southwestern Parishes, Louisiana. F. Ryan Clark, Editor, US Army Corps of Engineers, 2007.
11. Van Ledden, M, Powell, N, Stutts, DV, Ratcliff, J, Ruppert, T, Clark, FR. Elevations for Design of Hurricane Protection Levees and Structures within the New Orleans District, US Army Corps of Engineers, 2007.
12. Clark, F. R., McKee, B. A., Partitioning of Redox-Sensitive Metals in a Winter-Storm Generated Fluid Mud Event, Atchafalaya Shelf, Louisiana. Master's Thesis, Tulane University, 2003.