The RESTORE Act Center of Excellence for Louisiana Announces Awardees to Receive First Round Oil Spill Grants

The Louisiana Coastal Protection and Restoration Authority selected The Water Institute of the Gulf to serve as the State's RESTORE Act Center of Excellence, and on November 1, 2015, the U.S. Department of the Treasury awarded CPRA a grant to begin its research program. Funding for the research program comes from fines and penalties in the wake of the 2010 Deepwater Horizon oil spill. The first round of grants was announced June 22, 2017.

Grant summary:

RESEARCH AND COLLABORATIVE AWARDS

Integrating high-fidelity models with new remote sensing techniques to predict storm impacts on Louisiana coastal and deltaic systems ($501,270)
PI: Qin J Chen – CSRS Distinguished Professor in Coastal Engineering, Louisiana State University
Co-Investigators: Kehui Xu, LSU; Claire Jeuken, Deltares USA; Brady Couvillion, USGS
Develop a coupled model that integrates physical processes by utilizing high-resolution satellite data and in-situ measurements of the Caminada Headland Complex. The model will help better understand sediment exchange, wave conditions, and the feedbacks with vegetation in Louisiana's coastal estuary.

Coupling hydrologic, tide and surge processes to enhance flood risk assessments for the Louisiana Coastal Master Plan ($499,882)
PI: Scott Hagen, Professor Department of Civil & Environmental Engineering, Louisiana State University
Co-Investigators: Matthew Bilskie, LSU; ARCADIS; Don Resio, UNF; Hugh Roberts, ARCADIS
Evaluate the coupled hydrologic and surge influence on coastal flood hazards and risks in Barataria and Lake Maurepas watersheds by utilizing a storm surge model. The results from the model are intended to be used to improve long-term planning for vulnerable communities.

An evaluation of faulting in Holocene Mississippi River Delta strata through the merger of deep 3D and 2D seismic data with near surface imaging and measurement ($349,174)
PI: Mark Kulp, Associate Professor of Earth and Environmental Sciences and Director of Coastal Research Laboratory, University of New Orleans
Co-Investigators: Nancye Dawers, Tulane; Rui Zhang, ULL; David Culpepper, The Culpepper Group; John Lopez, Lake Pontchartrain Basin Foundation; Kevin Yeager, University of Kentucky
High-resolution seismic data and sediment coring will take place to evaluate faulting in the Mississippi River Delta Plain. Three study areas are planned in northern Terrebonne-Timbalier Bay, Bayou Lafourche near Golden Meadow, and the Lake Pontchartrain/Lake Borgne areas of the Deltaic Plain to better understand the vertical motion of land surfaces.

Assessment of coastal island restoration practices for the creation of brown pelican nesting habitat ($299,733)
PI: Paul Leberg, Professor Department of Biology, University of Louisiana at Lafayette

Co-Investigator: Jordan Karubian, Tulane
Determine factors altered by restoration, such as vegetation type, predator communities, and site characteristics that may affect brown pelican use of barrier islands as nesting habitat. Data will be provided to help improve the existing brown pelican habitat suitability model in the Coastal Master Plan.

From adapting in place to adaptive migration: designing and facilitating an equitable relocation strategy ($295,338)
PI: Marla Nelson, Associate Professor Planning and Urban Studies, University of New Orleans
Co-Investigators: Traci Birch, Coastal Sustainability Studio; Anna Brand, UNO; Renia Ehrenfeucht, UNO
Evaluate populations in Terrebonne Parish to identify the opportunities and challenges in designing an effective and equitable relocation policy that retains traditional communities while reducing risk. The team plans to collect data by interviewing residents about their concerns and priorities regarding the role of government in helping them relocate should they decide to move.

Enhancing sediment retention rates of receiving basins of Louisiana sediment diversions ($292,495)
PI: Kehui Xu, Assistant Professor, Department of Oceanography and Coastal Sciences, Louisiana State University
Co-Investigators: Samuel Bentley, LSU; Yanxia Ma, LSU
An observation and modelling effort that researches the hydrodynamics, sediment dynamics, sediment settling, and a holistic view of retention rate of fine grained or muddy material discharged from the Mississippi River. Specifically, Sediment Retention Enhancement Devices (SREDs) will be examined to determine their effectiveness to increase land building capabilities.

Plant and soil response to the interactive effects of nutrient and sediment availability: Enhancing predictive capabilities for the use of sediment diversions and dredging ($292,914)
PI: Tracy Quirk, Assistant Professor, Department of Oceanography and Coastal Sciences, Louisiana State University
Co-Investigators: Sean Graham, Nicholls State University
A field and laboratory marsh study to determine the interactive effects of nutrient and sediment availability on nutrient cycling, plant productivity and biomass allocation, decomposition and soil organic matter accumulation and accretion. New information is intended to be integrated into an existing model that informs the Coastal Master Plan.

GRADUATE STUDENTSHIP AWARDS (ADVISING FACULTY ARE LISTED)

Electrokinetic barrier for seawater intrusion in coastal Louisiana ($57,519)
Sanjay Tewari, Assistant Professor of Civil Engineering and Construction Engineering Technology Louisiana Tech University
The project plans to use electrokinetic barriers against seawater intrusion in the coastal region of Louisiana. Efforts will be made to compare the efficacy of this electrokinetic barrier against other techniques that are being used, which is important for many coastal areas that have freshwater crises due to saltwater intrusion.

Multiple tools for determining the fate of nitrate in coastal deltaic floodplains ($63,100)
Robert Twilley, Louisiana Sea Grant College Program Executive Director
Research project plans to identify what factors maximize the interaction between river water and floodplain wetlands and to better quantify transformation of nutrients (nitrate) by wetland plants, soil, and microbes of deltaic floodplains. Numerical modeling and field experiments will help better understand the fate of nitrate under emerging deltaic floodplains.

Project Louisiana rivers' sediment flux to the coastal ocean using a coupled atmospheric-hydrological model ($77,015)
Zuo Xue, Assistant Professor, Department of Oceanography and Coastal Sciences, Louisiana State University
Project proposes to incorporate sediment and ocean characteristics in a newly developed hydrologic model to quantify water and sediment flux from Louisiana rivers to the Chenier Plain, including the Calcasieu, Mermentau, and Vermilion basins. The goal is to project possible changes in water and sediment flux regarding future climate and restoration activities of the Coastal Master Plan.

Evaluation of radar-based precipitation datasets for applications in the Louisiana Coastal Master Plan ($71,148)
Emad Habib, Endowed Professor Department of Civil Engineer, University of Louisiana at Lafayette
Precipitation is considered a major source of freshwater in coastal Louisiana (50-60 inches/year), and accurate information about its magnitudes and spatial and temporal distributions is critical for successful implementation of modeling studies. Regional-scale assessment will be conducted on radar-rainfall datasets and evaluate whether they can be directly used by the Coastal Master Plan studies.

Constructing Mississippi River delta plain soil stratigraphy – implications for coastal land building and compactional subsidence ($70,070)
Frank Tsai, Professor Department of Civil and Environmental Engineering, Louisiana State University
This study will investigate coastal land building and compactional subsidence through soil stratigraphy analysis and subsidence modeling of the Mississippi River Deltaic Plain. Results from this project are intended to benefit the Coastal Master Plan's restoration projects, such as marsh creation projects and sediment diversions.

Determining the influence of surface water diversions on physical and nutrient characteristics of wetland soils ($83,328)
John White, John and Catherine Day Professor of Oceanography & Coastal Science, Department of Oceanography and Coastal Sciences, Louisiana State University
This wetland project will examine if and how the 10+ years of operation of Davis Pond Freshwater Diversion changed the soil marsh properties of bulk density, organic matter content, and nutrient content that are important to coastal marsh accretion and resilience in Barataria Basin. Data from this research could help inform CPRA about the continued use of large freshwater diversions (Davis Pond and Caernarvon).

About The RESTORE Act Center of Excellence for Louisiana The mission of the RESTORE Act Center of Excellence for Louisiana is to provide research directly relevant to implementation of Louisiana's Coastal Master Plan by administering a competitive grants program and providing the appropriate coordination and oversight support to ensure that success metrics are tracked and achieved. The Center is a separate program within The Water Institute of the Gulf. More information about the RESTORE Act Center of Excellence for Louisiana can be found at www.LA-COE.org.

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