

Study to examine rising sea level's impact on estuaries, coastal communities

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A new University of Central Florida study will examine how rising sea level could harm estuaries and coastal communities along the Florida Panhandle and Alabama and Mississippi coasts.

The research, led by Scott C. Hagen, an associate professor of Civil Engineering, is a response to scientific studies that show sea level is rising along most of the U.S. coasts. Hagen's research also could potentially be linked with models of how remaining oil from the BP Deepwater Horizon spill would be expected to travel through and impact sensitive ecosystems.

The areas to be studied are part of the National Oceanic and Atmospheric Administration's (NOAA) National Estuarine Research Reserve System and, coincidentally, overlap with the region most directly impacted from the spill.

The UCF-led team has received more than \$725,000 of an anticipated \$3 million, five-year grant funded by NOAA. The project will use computer modeling and simulation techniques to understand the long-term impacts of rising [sea level](#), which threatens barrier islands, beaches, wetlands and critical habitats for commercially valuable species such as oysters.

NOAA officials believe these coastal environments will be in jeopardy without changes in coastal resource management and land planning. The agency's goal is to use data collected in the field and via remote sensors,

along with simulation models, to provide policy makers needed information to plan for a changing coastline.

Hagen, the director of UCF's Coastal Hydroscience Analysis, Modeling & Predictive Simulations Laboratory (CHAMPS Lab), said the project is the culmination of years of studying and modeling tidal activity and the impact of phenomena such as wind, storms and hurricanes.

"Our experiences have shown us the interconnectedness of virtually all of the physical and biological phenomena that we study," Hagen said.

To understand why water moves the way it does and how it impacts adjacent landscapes and estuaries, Hagen and his colleagues have developed tidal models during the last 15 years for the entire east coast of the United States, the Gulf of Mexico and the Caribbean Sea.

Their work includes detailed computer modeling of much of the Florida Panhandle region. Hagen led a series of studies on coastal storm surge for the Northwest Florida Water Management District and the Federal Emergency Management Agency.

Hagen will partner with several other experts, including UCF biology professors John Weishampel, a landscape ecologist who specializes in remote sensing, and Linda Walters, a marine biologist who specializes in oyster habitats. The team will develop models of where the rising water will eventually settle and its potential impacts on these economically and ecologically important estuarine systems.

Civil & Environmental Engineering professors George Yeh and Dingbao Wang will assist with the development of those models and also model water flow and sediment transport over inland areas.

The researchers will be working closely with coastal managers in the

areas most affected by the oil spill and will be able to integrate data that will be useful to ongoing recovery efforts.

In addition to UCF and NOAA, researchers from the University of South Carolina, Florida State University and the University of Florida are contributing to the project. Other partners include the Northwest Florida Water Management District and Dewberry Inc.

Provided by University of Central Florida

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