The USGS Wetland and Aquatic Research Center has a **Mendenhall Postdoctoral Research Fellowship Opportunity** available. Please share this information with individuals who might be interested. Note that the application deadline is approaching (April 5th).

The title of the opportunity is: **Coastal wetland responses to extreme events: providing a historical perspective to better anticipate the future.**

We seek a postdoctoral fellow that will investigate coastal wetland responses to extreme events at landscape-, regional-, and/or global scales.

Thanks!
Mike

General Information:
Mendenhall Fellows are appointed to the USGS for two years and receive full salary and benefits at the GS-12 level, step 1. For Lafayette (Louisiana), the 2021 Annual Salary for a GS-12 level, step 1 position is $77,488.

Link to Research Opportunity Description:
https://www.usgs.gov/centers/mendenhall/s54-coastal-wetland-responses-extreme-events-providing-a-historical-perspective

Link to Application Instructions:
https://www.usgs.gov/centers/mendenhall/when-and-how-apply

Link to General Information about the Mendenhall Research Fellowship program:
https://www.usgs.gov/centers/mendenhall

Research Opportunity Title:
Coastal wetland responses to extreme events: providing a historical perspective to better anticipate the future

Research Advisors: Mike Osland, Nicholas Enwright, Jim Grace, Camille Stagg, Ken Krauss

Research Opportunity Description:
Coastal wetlands provide many ecosystem services to society, and their stability is a high priority for coastal managers. Across the globe, there is much interest in maintaining and restoring coastal wetlands for current and future generations. However, coastal wetland stability and restoration efforts can be affected — in negative and positive ways — by extreme climatic events including droughts, floods, freezes, hurricanes, and heat waves. To better anticipate and prepare for the effects of future changes in extreme event frequency and intensity, there is a need to advance understanding of the following questions: (1) How have coastal wetlands historically responded to extreme events? (2) How are coastal wetland responses to extreme events affected by interactions between climatic drivers? and/or (3) How can coastal

management and restoration efforts increase ecological resistance and resilience in the face of extreme events?

The USGS Wetland and Aquatic Research Center seeks a postdoctoral fellow that will investigate coastal wetland responses to extreme events at landscape-, regional-, and/or global scales. We specifically seek a landscape ecologist that will provide a historical perspective on this topic and advance new investigations to inform future predictions. Wetland stability is closely linked to plant productivity and vegetation performance. Thus, we envision that the fellow will use their expertise in landscape ecology and coastal wetland ecosystem dynamics, in combination with innovative approaches for integrating existing geospatial data (e.g., historical climate and vegetation change products), to investigate the ecological effects of extreme events that have occurred in recent decades. The fellow would then use this knowledge to assess the ecological effects of alternative future scenarios of changes in extreme event frequency and intensity. Ecological theory and landscape-scale metrics regarding ecosystem resistance, resilience, enhancement, and/or regime shifts could be incorporated into the analyses. With the plethora of extreme events that have affected coastal wetlands in recent decades, this research position is well timed and can lead to a new USGS investigative science program that scientists and wetland managers urgently need.

Extreme events can lead to mass mortality events and abrupt landscape-scale ecological transformations (Sippo et al., 2018). For example, drought and heat waves can lead to hypersaline conditions that result in marsh and mangrove dieback events (Alber et al., 2008; Lovelock et al., 2017). Freeze events can lead to mortality of freeze-sensitive tropical mangrove forests, which can benefit salt marsh plants (Osland et al., 2016; Osland et al., 2018). Extreme hurricanes, flooding, and prolonged inundation have the potential to induce peat collapse following plant mortality (Krauss & Osland, 2020; Osland et al., 2020; Stagg et al., 2020). Conversely, many coastal wetlands are resilient ecosystems that can recover from extreme events, but how much time does full recovery require? Where vegetation dieback does not occur, altered abiotic conditions due to changes in the frequency and intensity of extreme events can lead to ecological regime shifts associated with plant community change, which can affect the goods and services provided by coastal wetlands. Coastal wetland changes due to extreme events are often observed by astute coastal managers without the needed data and documentation to support their observations and, more importantly, make decisions to improve stability and avoid degradation. To better anticipate and prepare for the effects of future changes in event frequency and intensity, there is a need to advance understanding of coastal wetland responses to extreme events and develop tools to transfer research to actionable science for coastal wetland managers.

Application Deadline: April 5, 2021

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