Science, Management, Practice and Policy: Habitat Management, Climate Impacts and Emerging Issues

Apr 27, 2022 3:30 - 3:45 PM **Abstract Title:** Application of the USACE International Guidelines on Natural and Nature-Based Features for Beaches

Abstract Description: Interest to Conf Attendees: With the release of the USACE's International Guidelines on Natural and Nature-Based Features September 16, 2021, the interest to GomCon attendees in applying this state-of-the-art guideline to beach and dune projects is high.

Objective: Demonstrate an application of the 2021 USACE's International Guidelines on Natural and Nature-Based Features guidelines using representative beach and dune projects along the US coasts.

Methods/Approach/Results: USACE and collaborators from the public and private sector around the world have been building, learning, and documenting the best practices for constructing Natural and Nature Based Features (NNBF) for decades. The consolidation of these lessons into a single +1,000-page guidance document gives decision makers and practitioners a much needed resource to pursue, consider, and apply NNBF for flood risk management while expanding value through infrastructure. Application of this guideline with examples from the Atlantic Coast will include the following topics:

- Defining the Beach and Dune System
- Management Strategy
- Design Principles and Pathways
- Addressing Uncertainty with Dynamic Adaptive Policy Pathways (DAPP) Approach
- Performance, Benefits, and Costs

Conclusions/Lessons Learned: Examples presented will describe the application of the USACE NNBF guidelines and its usefulness to planning, design, and engineering of beach and dune projects.

Speaker: Mack, Chris Coastal Solutions Regional Director Stantec Consulting Services Inc.

Apr 27, 2022 3:45 - 4:00 PM **Abstract Title:** Experimental Characterization of Modified Polyurethane Foams for Mechanical Cleanup of Oil Pollutants at Sea Surface

Abstract Description: Oil spills at sea, as the Deep Water Horizon incident in 2010, are the far most devastating environmental hazards, especially for biodiversity. To help to restore coastlines, it is critical to clean the oil quickly and efficiently with various measures, such as the use

of barriers, skimmers, sorbents, dispersing agents, in-situ burning, and biological agents. However, they all still cause high remediation costs and are not environmentally friendly due to the lack of reusability.

Therefore, in this work, reusable polyurethane foam for oil absorption at the sea surface is presented. It is coated with a special co-polymer to enhance its oleophilic and hydrophobic properties. Laboratory tests with Louisiana sweet crude oil (BP) in artificial seawater were conducted to investigate the foam's oil absorption capacity, reusability, and a preferred absorption affinity towards oil than to seawater. To do so, a pneumatic press on a laboratory scale is used to characterize the foam's capability. The sponge absorbs crude oil 26 times its own weight with a maximum saturation in less than one minute. Due to the oleophilic properties, the absorption amount of seawater is less than 5 %w/w. Data demonstrate a consistent mechanical removal of the oil for 50 repetitions.

Speaker: CISNEROS-AGUIRRE, JESUS, Professor University of Las Palmas de Gran Canaria & PONTHO INGENIERIA

Apr 27, 2022 4:00 - 4:15 PM **Open**

Apr 27, 2022 4:15 - 4:30 PM **Abstract Title:** Hurricane Ida: The Human Story of a Billion-Dollar Disaster

Abstract Description: The phrase 'climate equity' has moved to the forefront of the national conversation. Activities have been undertaken to identify and address the impacts of climate change on underserved populations. We examine the phrase through the lens of a recent disaster and demonstrate the use of social science data to tell the story.

NOAA National Centers for Environmental Information used Hurricane Ida as the lens through which to tell the impactful human story of this event. Ida was a multi-billion dollar disaster that impacted many high-risk areas of the U.S. between August 26 - September 4, 2021. For this example, NCEI's Billion-Dollar Disaster database served as the foundational data set. These data were compared with the Hurricane Ida storm track and timeline, census tract data, and other sources to determine how the physical, economic, and social data would tell the story of the human impacts. Post-Ida anecdotal interviews and news features also described these impacts, and were used to draw further connections between the physical and social data.

The presentation will review the study findings, which puts a human face on what is often portrayed as a weather or economic report. An NCEI StoryMap shows the human side of the disaster with respect, and with hope for change.

Speaker: Mesick, Sharon Director, Southern Regional Climate Service NOAA

Apr 27, 2022 4:30 - 4:45 PM **Abstract Title:** What's the Big Idea?: Advancing National Priorities Through Sea Grant Partnerships in the Gulf Region

Abstract Description: Sea Grant is a federal-university partnership between the National Oceanic and Atmospheric Administration (NOAA) and 34 university-based programs in every coastal and Great Lakes state, Puerto Rico, and Guam. This long-standing network of programs has a common mission to enhance the practical use and conservation of coastal, marine and Great Lakes resources in order to create a sustainable economy and environment. The Sea Grant network can leverage its administrative infrastructure, academic connections, extension expertise, and established trust in coastal communities to achieve with partners mutual goals for resilient communities and economies, sustainable fisheries and aquaculture, healthy coastal ecosystems, and environmental literacy and workforce development. In the Gulf, recent examples of these partnerships run the gamut from raising awareness of best angling practices to reduce barotrauma in reef fish to developing data to inform decision-making about decommissioned offshore oil rigs and building capacity to understand coastal acidification through the development of graduate researchers. This presentation will focus on tri-party collaborations involving the NOAA National Sea Grant Office, state-based Sea Grant programs, and other federal partners. We will review multiple pathways for funding new Sea Grant initiatives, key principles for successful collaboration using cooperative agreements, and how federal programs can further explore partnering with Sea Grant.

Speaker: Samek, Kelly Gulf Regional Lead NOAA Sea Grant

Apr 27, 2022 4:45 – 5:00 PM **Abstract Title:** Gulf of Mexico Glider Operations in Support of Tropical Cyclone Intensification Forecasts

Abstract Description: Decision makers rely on accurate, up-to-date predictions of tropical cyclone trajectory and intensity to inform the public and assess the risk to coastal regions. Subsurface ocean temperature is an important factor for predicting hurricane activity and is used for calculating tropical cyclone heat potential, which quantifies upper ocean heat content and plays a role in tropical cyclone formation and intensification. Underwater gliders are utilized to collect in situ measurements in the upper 1,000 meters of the water column; the temperature and salinity profiles are transferred in near-real time and assimilated into operational forecast models. The focus of the glider missions is to resolve regional features such as the Mississippi River plume, Loop Current, and Loop Current Eddies, which impact hurricane intensity. Generally, each glider maintains a "picket line" for the duration of the mission; however, adaptive sampling is also considered to better define the regional ocean features and passing tropical cyclones. An overview of the 2021 hurricane glider operations will be presented as well as model data comparisons from Hurricane Ida.

Speaker: Whilden, Kerri Assistant Research Scientist Texas A&M University