CIVIL AND ENVIRONMENTAL ENGINEERING

Featuring:
Ehab Meselhe
Vice President for Engineering, The Water Institute of the Gulf

CIVE 7400
Distinguished Seminar Series

The Department of Civil and Environmental Engineering Presents:

BIOPHYSICAL ANALYSIS OF A PROPOSED NETWORK OF SEDIMENT DIVERSIONS

Deltaic processes are governed by factors including the characteristics of inflowing sediment, receiving basins, and substrate. This topic is of importance to deltas experiencing land loss due to subsidence and sea level rise. The Mississippi River Delta is an example where a number of sediment diversions are being considered in conjunction with other restoration actions to minimize loss of wetlands. The Mississippi River played a significant role in providing sediment, nutrients, and fresh water to support Louisiana's coastal wetland system. As such, a systems perspective for regional-scale implementation of diversions is important. Field observations coupled with numerical modeling at various temporal and spatial scales, has provided insights toward a system-scale approach to design, evaluate and operate sediment diversions. Specifically, this presentation discusses the impact of extracting sediment and water from fluvial rivers, the ability to convey (and retain) sediment to the receiving basins. In addition to delivering sediment to receiving basins, some proposed sediment diversions could discharge high volumes of nutrient-rich fresh water into existing wetlands and bays. A goal of the analysis presented here is to improve our understanding of morphodynamic responses of the receiving basins and the ecosystem effects of discharges of freshwater and nutrients at this scale.

About the Speaker

Ehab Meselhe, Ph.D., P.E., is the vice president for engineering at the Water Institute of the Gulf, and a Professor at the Department of River-Coast Science and Engineering, Tulane University. He has more than 20 years of experience researching wetland hydrology, sediment transport, and computer modeling of inland watersheds, coastal wetland, estuarine, and riverine systems. Dr. Meselhe served as Louisiana's technical lead for the Mississippi River Hydrodynamic and Delta Management Study and helped build the numerical models that provided a foundation for Louisiana's 2017 Coastal Master Plan. He also served as an Associate Editor of the *Journal of Hydrology (Elsevier)*, and the *Journal of Hydraulic Research (International Association of Hydraulic Research).*

Northeastern University

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103 Churchill Hall