



## Locating Faults in Louisiana Gulf Coast Quaternary Stratigraphy by Combination of Cone Penetrometer Tests with Borings and Chirp Seismic Data, Golden Meadow, Louisiana

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### EXTENDED ABSTRACT

As the land supporting Louisiana's extensive marshes seems to disappear at the estimated rate of a football field an hour, the urban environment experiences a greater risk of damage from frequent large storms (Davis, 2018; Yuill, 2000). Restoration of the delicate regional and local landscape and maintenance of urban flood protection requires accurate environmental analysis to combat the fault activity and protect urban developments. Fault activity is one of the most crucial factors which can cause wetland change and is often invisible on the surface (Gagliano, 2003). In this region fault activity is a slow, ongoing process making evidence of movement very small in scale or easily obscured by other events that can alter the environment more rapidly (Inhofe et al., 2005; Morton et al., 2002; Gagliano, 2005; Yuill, 2000). Activity is often only seen as infrastructure damage and marsh loss (Gagliano, 2003).

Our main study area is the Golden Meadow Fault Zone, located between the Barataria and Terrebonne basins on the southern edge of the Gulf Margin normal faults of Louisiana. The fault zone is a small array of seaward facing normal faults in sediments and poorly lithified rock which creates a graben structure lying across Bayou Lafourche, (the youngest abandoned delta complex of the Mississippi River active from 2500–800 yr before present) (Crone and Wheeler, 2000; Frazier, 1967; Johnston, 2019; Roberts, 1997). The bayou runs directly through the land-strip which is bordered on all sides by man-made levees and marsh. The study area is seen in [Figure 1](#).

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