

## **WIND, WATER, AND PUBLIC SAFETY: SOCIOECONOMIC DISPARITIES IN HURRICANE SAFETY, SOUTH FLORIDA HOUSING**

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Hurricane mitigation policies in the U.S. encompass a wide range of planning and response measures, including flood- and wind-resistance building codes for structures potentially exposed to hurricanes. In Florida, many code modifications arose from “lessons learned” about structural failures in past events, extending back to the great Okeechobee Hurricane of 1928 that where destruction in rural residences produced thousands of fatalities; through codes modified after Hurricanes Andrew in 1992 and Charley in 2004. In many historic events, lower-income communities experienced greater risks – and greater losses – partly because regulatory protections were unequally specified and/or implemented. The objective of this research was to identify, characterize, and quantify certain hurricane-safety risks to residents of Florida owing to different residential structural requirements, particularly with respect to differing socioeconomic status. Federal, state, and local policies and regulations for structural protections differentiate between site-built residences and manufactured homes, the latter of which data show are present in greater proportion in areas with lower income. Florida’s building codes in designated zones require site-built homes to withstand high winds (150 - 160 miles per hour (mph)) and rise above inundation (lowest occupied floor 1 - 2 feet above FEMA-determined Base Flood Elevation (BFE)) to a greater degree of protection than homes – subject to Federal regulations, which specify wind protection only to 100 mph (in designated hurricane zones) and elevation only at the BFE (in FEMA-designated floodplains). Manufactured homes constituted only 9.5% and 2.7% of residential units in Lee and Palm Beach Counties, respectively – two populous, growing, higher-median-income counties. GIS analysis showed those counties hold nearly 20,000 homes within FEMA-designated floodplains. By contrast, rural, lower-income Hendry and Glades Counties had a smaller number (9,500) but greater proportions (40.1%, 50.6%), such that nearly half their populations experienced the greater hurricane risks of manufactured homes.

**PRESENTER BIO:** Dr. Duke is Professor of Environmental Studies at FGCU. He holds a Ph.D. in Civil and Environmental Engineering from Stanford University and has 30 years of academic experience in quantitative and qualitative analysis of scientific and engineering data to assess effectiveness of watershed management and environmental protection policies and regulations.