



**CESU Final Report Summary for Hurricane Evacuation Behavioral Survey for South Carolina
W912HZ-10-2-0040**

Purpose: The goal of the project was to gather and analyze information from South Carolina coastal residents on their past and potential evacuation behavior in response to a hurricane.

Location: South Carolina - The target population was located in counties in the three Coastal Hurricane Conglomerates used for planning and response: Northern (Horry and Georgetown); Central (Charleston, Berkeley, and Dorchester) and Southern (Beaufort, Colleton, and Jasper).

Methods: Used a mailed questionnaire rather than phone interviews. This provided two advantages: 1) a more detailed questionnaire; and 2) more specific geo-referencing of respondents. A significant contribution of this study is the geo-referencing of the responses into storm surge evacuation zones—minor hurricanes (Category 1 and 2 together, Category 2 separate), major hurricanes (Category 3, 4, and 5 together), and a shadow evacuation zone (where there is no risk of storm surge, but where residents might also heed evacuation warnings). The survey instrument utilizes a combination of descriptive and exploratory questioning to gain an understanding of evacuation intentions and behavior, as well as those personal and demographic factors influencing decision making (e.g. personal safety, information sources, life orientation, risk perception, age, socioeconomic status). It contains questions that fall into eight broad categories: demographics, hurricane preparedness, evacuation behavior, evacuation history, evacuation intentions, home and personal safety, information sources, and personal risk assessment. The sample population size was determined by applying a population-weighted multi-level stratification to South Carolina's coastal counties in all of the Coastal Hurricane Conglomerates and surge evacuation zones.

Results: The survey suggests a major issue with non-evacuation among coastal residents for minor hurricanes. Close to two-thirds (61%) of the sample is *unlikely* to evacuate in advance of a Category 1 or Category 2 hurricane. This is particularly worrisome as more than half of the residents live in a Category 1-2 zone, and 48% percent of residents in a Category 2 zone stated they would not evacuate. We estimate that in the Northern Conglomerate, the unlikely percentage reaches 73%. The Southern Conglomerate shows a higher intention to evacuate in a Category 1 or 2 hurricane (29%-35%). Beaufort County will likely have the largest participation in an evacuation (31%-36% of residents based on our sample), and Horry County the least (8%-15%)(Table 9). For those residents in an evacuation zone, we estimate that between 173,100-204,300 people are likely to evacuate from minor hurricanes. For major hurricanes, the anticipated behavior is better, with 77% of the coastal residents in the survey saying they will leave. This translates into approximately 914,000-955,000 residents (out of 1.2 million people) that would be evacuating the coastal area for a hurricane evacuation.

Prior hurricane experience plays an important yet sometimes uneven role in evacuation decision-making. As South Carolina's population grows, especially via external migration, it is likely that fewer residents will have prior experience with hurricanes. Officials cannot assume that residents will understand their local hurricane risk on the basis of past experience alone.

Large numbers of residents are uncertain about their location in or out of a storm surge or FEMA flood zone. The state needs stronger and continuous public education programs about the location of their address relative to these zones and the likely threat differences among them.

More than half the respondents report that damage to their home is likely during a hurricane. This leaves a substantial number who may be underestimating the likelihood of damage and, as a result, carrying insufficient insurance coverage or an unrealistically high deductible.

While most respondents report having an evacuation plan and household supplies to last several days, continued education on what constitutes a good plan and disaster supply kit should be maintained.

Local information dissemination is key. Respondents rely more heavily on county and municipal sources for preparedness information. Other providers (the state, Red Cross, charities, etc.) should establish relationships that partner at the local level.

Local television and radio are among the top three information sources for evacuation notices and storm updates. Consistent messages by local officials, trusted because of their local knowledge, can provide actionable information that supplement "bigger picture" information provided by national media, such as the Weather Channel.

As expected, evacuation intent diminishes farther from the coast. Education about the wind hazard is needed for inland residents; while storm surge is spatially constrained, hurricane-strength winds create damages far from the shoreline.

Mandatory evacuation orders are more effective in spurring action than recommendations. Officials must carefully consider when a mandatory evacuation is needed and whether the public finds the issuing source as credible.

Respondents report a willingness to travel longer distances and stay in accommodations such as campgrounds and hotels, which diverges from the relatively low amount of money they are willing to spend. This may suggest an overly optimistic – or unrealistic – expectation about how long evacuees may be unable to return to their primary residence.

Social organizations are important for post-disaster recovery. Where possible, interested religious, social, and service organizations should partner with local agencies to augment, not

duplicate, existing services.

Although not surveyed here, the tourist population is highest along the coast during hurricane season and may confound some of these findings. Evacuation times, chosen routes, and the number of vehicles driven, among other factors, will vary from those reported by full-time coastal residents. Continued hurricane education via fliers and pamphlets in hotels and tourist destinations can provide needed information to this relatively uninformed group.

A significant percentage of evacuating households will take pets with them. An increase in the number of pet-friendly public shelters would accommodate this need. Also, additional education and outreach about what shelters will and will not accept pets is needed.

Planning for shadow evacuation populations (residents outside of designated evacuation zones who evacuate anyway) should be included. These residents can pose significant issues for emergency managers, especially in response to a major hurricane.

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