

Florida Statewide Regional Evacuation Study Program – Regional Behavioral Survey Report, Volume 3-11.

Prepared by Kerr And Downs Research Group, with contributions from Earl J. Baker, Ph.D., Hazards Management Group.

“Regional findings from a 2007-2008 survey of Florida residents conducted as part of the Statewide Regional Evacuation Study. The primary aim of the survey was to provide data to assist in deriving evacuation behavioral assumptions for transportation and shelter analyses. The main focus of the survey was hurricane evacuation, but questions were also asked about evacuation due to freshwater flooding, wildfires, hazardous material accidents, and nuclear power plant accidents. The survey included questions that are important in developing accurate behavioral projections for transportation and shelter planning but also incorporated questions deemed useful by county emergency management officials.

In each coastal county of the state 400 interviews were conducted. The interviews were allocated among aggregations of hurricane evacuation zones (e.g., category 1-2) in the respective counties. The aggregation of zones and allocations of interviews among the zones were determined after input from county and regional representatives and varied among counties and regions. Selections were also made in order to reflect aggregations of zones currently used operationally and in public information materials by counties and to provide appropriate distribution of data that would be necessary to derive behavioral projections as required by the Statewide Regional Evacuation Study. In order to ensure that respondents resided in the evacuation zones of interest, addresses were selected first, and then telephone number at those addresses. By necessity only residences with land-line telephones were called, as sampling was conducted by address.”

Questions	Location	Response (YES)	Sample Size (n)
Awareness of Evacuation Zones - Have you ever seen a map of your county showing areas that would need to evacuate in case of a hurricane?	Monroe	76%	400
	Key West	74%	100
	Lower Keys	76%	100
	Middle Keys	75%	100
	Upper Keys	78%	100
Perceived Vulnerability - Do you believe storm surge or waves from a category 3 hurricane would reach your home and cause flooding severe enough to pose a serious danger to your safety? Remembering that a category 1 is the weakest and 5 is the strongest; a category 3 hurricane has winds of 125 miles per hour. Emergency Management officials call it a major hurricane. If a category 3 hurricane with 125 mile per hour winds passed directly over your location, do you believe storm surge or waves would reach your home and cause flooding	Monroe	60%	400
	Key West	65%	100
	Lower Keys	50%	100
	Middle Keys	66%	100
	Upper Keys	57%	100

severe enough to pose a serious danger to your location?			
<p>Perceived Vulnerability - Do you believe storm surge or waves from a category 4 hurricane would reach your home and cause flooding severe enough to pose a serious danger to your safety?</p> <p>Finally I would like you to consider a category 4 hurricane with winds of 155 miles per hour. It would almost be a category 5 hurricane. If a category 4 hurricane passed directly over your location, do you believe storm surge or waves would reach your home and cause flooding severe enough to pose a serious danger to your safety?</p>	Monroe	80%	400
	Key West	81%	100
	Lower Keys	83%	100
	Middle Keys	79%	100
	Upper Keys	76%	100
<p>Evacuation Plans - Suppose that officials decided that the storm could strengthen and become a category 5 hurricane. If they issued a mandatory evacuation notice saying you should leave your home and go someplace safer, would you leave your home to go someplace safer?</p>	Monroe	88%	400
	Key West	89%	100
	Lower Keys	91%	100
	Middle Keys	90%	100
	Upper Keys	84%	100
<p>Evacuation Plans - Suppose officials DID issue a mandatory evacuation notice saying everyone living in category 1, 2, or 3 evacuation zones and everyone in mobile homes had to leave. Would you leave to go someplace safer?</p> <p>Suppose that officials DID issue a mandatory evacuation notice saying that everyone living in areas that would be affected by flooding in a category 1, 2 or 3 hurricane and everyone living in mobile homes or manufactured housing in your county must evacuate their homes and go to a safer location. In that case, would you leave your home to go someplace safer?</p>	Monroe	51%	60
	Key West	52%	30
	Lower Keys	42%	10
	Middle Keys	54%	10
	Upper Keys	57%	10
<p>Evacuation Plans - Suppose officials DID issue a mandatory evacuation notice saying everyone living in category 1, 2, 3, 4, or 5 evacuation zones and everyone in mobile homes had to leave. Would you leave to go someplace safer?</p> <p>Suppose that officials DID issue a mandatory evacuation notice saying that everyone living in areas that would be affected by flooding in a category 1, 2, 3, 4, or 5 hurricane and everyone living in mobile homes or manufactured housing in your county must evacuate their homes and go to a safer location. In that case, would you leave your home to go someplace safer?</p>	Monroe	85%	60
	Key West	84%	30
	Lower Keys	57%	10
	Middle Keys	100%	10
	Upper Keys	97%	10
Vehicle Availability & Intended Use - If you evacuated, would you take a	Monroe	14%	382

motor home or pull a trailer, boat, or camper?	Key West	4%	89
	Lower Keys	20%	99
	Middle Keys	17%	97
	Upper Keys	20%	97
Housing & Mitigation - Is your mobile or manufactured home built to the stronger wind standards they started using in 1994?	Monroe	33%	44
	Key West	0%	5
	Lower Keys	4%	6
	Middle Keys	54%	17
	Upper Keys	35%	16

Housing & Mitigation - County-Level Results Incidence of detached, single family housing ranges from 47% in Broward and Miami-Dade counties to 73% in Monroe County. Mobile/manufactured housing ranges from 1% in Broward and Miami-Dade counties to 10% in Monroe County

Which of the following types of structures do you live in?

	n	Detached Single-family home	Duplex, triplex, quadruple home	Apartment/condo – 4 stores or less	Apartment/condo – more than 4 stores	Mobile home	Manufactured home	RV	Boat	Some other type of structure	Don't know/refused
Monroe	400	73%	6%	6%	2%	9%	1%	0%	1%	1%	0%
Key West	100	66%	14%	10%	3%	4%	0%	0%	2%	1%	0%
Lower Keys	100	92%	1%	2%	0%	4%	1%	0%	0%	0%	0%
Middle Keys	100	70%	6%	8%	1%	10%	2%	0%	2%	1%	2%
Upper Keys	100	67%	2%	3%	1%	22%	2%	0%	1%	2%	0%

Florida Statewide Regional Evacuation Study Program – Regional Behavioral Analysis, Volume 2-11

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*“A study was conducted to provide guidance in selecting behavioral assumptions to be used in evacuation transportation modeling and shelter planning. For residents the process included telephone interviews with residents of the region and analysis of that and other data to derive indications of how the population would respond in the event of certain threats, most notably hurricanes. The Statewide Regional Evacuation Study Program survey data was used in conjunction with data from previous evacuation surveys to **derive probable behaviors to be used as planning assumptions**. For tourists planning assumptions were based on generalizations about tourist behavior in hurricane evacuations derived from previous studies. Statewide Regional Evacuation Study Program transportation and shelter analyses might employ behavioral assumptions that differ from those found in this document.*”

A. Data Collection and Sample Sizes

To support the behavioral analysis for residents, telephone interviews were conducted by Kerr & Downs Research with 1200 residents of the South Florida region – 400 in each county. In Broward and Miami-Dade the 400 interviews were allocated among evacuation zones after consultation with county emergency management officials in each county. In Monroe County the 400 interviews were apportioned geographically within the Keys, after consultation with county emergency management officials. Sample sizes, also broken down according to whether the respondent lived in a site-built home or a mobile home (including manufactured homes), are shown in Table 1. The total in Table 1 excludes respondents whose residence could not be identified as site-built or mobile home.”

Table 1. Sample sizes in South Florida counties

	Site-built Homes (SB)	Mobile Homes (MH)	SB + MH
Monroe (Key West)	90	5	95
Monroe (Lower Keys)	93	6	99
Monroe (Middle Keys)	79	17	96
Monroe (Upper Keys)	81	16	97

Working data tables display data from the SRESP Survey Data Report in a condensed, abbreviated format. **They are not intended to replace the Survey Data Report, which contains more complete descriptions of question wording and sample size information, and should not be used without being familiar with the information in the Survey Data Report.** The working data tables were prepared to facilitate the use of the SRES survey data in deriving behavioral assumptions for planning. This was accomplished by organizing the survey data most relevant to particular behaviors together and placing as much of it as feasible on the same page to permit at-a-glance perusal of the most relevant information. As a consequence, variable names have been shortened to compress the space needed to display all of the pertinent data, and certain conventions have been applied to serve as reminders about caveats applicable in some instances.

One such caveat involves sample size constraints. If the number of respondents to a question was lower than 10, a dash appears in the respective cell, indicating that the sample size was too small to make useful inferences. If the sample size was between 10 and 20, the sample size is displayed in parentheses (e.g., n=15). In Tables 1, 2, 3 for Broward and Miami-Dade and Tables 1, 2, 3, 5, 6, and 7 for Monroe, the variable "Would Evac in Cat 4-5" has an asterisk and data entries are italicized to indicate that the sample size for that variable is smaller than for others in the same table. In Table 6 for Broward and Miami-Dade and Tables 10 and 12 for Monroe, responses for the variable "Could Stay w/ Friend/Rel" are reported for the county as a whole because there were generally too few respondents to the question within a particular evacuation zone at the county level. The SRESP Survey Data Report contains information about actual numbers of responses.

In Monroe Tables 1, 2, 3, and 4 as applied to site-built homes, Tables 5, 6, 7, and 8 as applied to mobile homes, and Table 9 contain information relevant to whether respondents will evacuate (i.e., leave their homes to go someplace safer). Tables 10, 11, and 12 summarize data used in projecting the type of refuge evacuees will employ. Tables 13, 14, and 15 pertain to whether evacuees will leave their own county. Table 16 is relevant for predicting the percentage of available vehicles that will be used by evacuating households. (The Monroe County working data tables contain tables for mobile home responses. There were too few mobile home responses in Broward and Miami-Dade to prepare separate tables.)

Table 1. Perceived Vulnerability, Expectation of Receiving an Evacuation Notice from Officials, and Evacuation Intentions in a 100 MPH Category 2 Hurricane

Site Built Homes	Key West	Low Keys	Mid Keys	Up Keys
Flood in Cat 2	31	33	35	22
Unsafe in Cat 2	21	19	28	19
Expect Evac Notice in Cat 2	68	72	75	73
Would Evac in Cat 2*	33	-	60 (n=10)	-
Would Comply in Cat 2	41	47	42	51

Table 2. Perceived Vulnerability, Expectation of Receiving an Evacuation Notice from Officials, and Evacuation Intentions in a 125 MPH Category 3 Hurricane

Site Built Homes	Key West	Low Keys	Mid Keys	Up Keys
Flood in Cat 3	51	57	60	51
Unsafe in Cat 3	54	45	61	51
Expect Evac Notice in Cat 3	93	94	91	89
Would Evac in Cat 3*	56	-	80 (n=10)	-
Would Comply in Cat 3	71	68	71	70

Table 3. Perceived Vulnerability, Expectation of Receiving an Evacuation Notice from Officials, and Evacuation Intentions in a 155 MPH Category 4 (nearly 5) Hurricane

Site Built Homes	Key West	Low Keys	Mid Keys	Up Keys
Flood in Cat 4-5	71	81	76	69
Unsafe in Cat 4-5	76	76	87	80
Expect Evac Notice in Cat 4-5	98	98	95	96
Would Evac in Cat 4-5*	85	-	100 (n=10)	-
Would Comply in Cat 4-5	89	88	86	85

Table 4. Evacuation in Georges, Ivan, and Wilma and Type of Evacuation Notice Heard, if any

Site Built Homes	Key West	Low Keys	Mid Keys	Up Keys
Evacuated in Georges	35	41	49	27
Heard Must	37	36	26	21
Heard Should	35	34	26	11
Heard Neither	28	30	49	68
Evacuated in Ivan	28	36	21	25
Heard Must	31	21	21	14
Heard Should	34	21	25	37
Heard Neither	35	58	54	49
Evacuated in Wilma	25	34	16	28
Heard Must	41	34	24	23
Heard Should	27	29	27	26
Heard Neither	32	38	49	51

Table 5. Perceived Vulnerability, Expectation of Receiving an Evacuation Notice from Officials, and Evacuation Intentions in a 100 MPH Category 2 Hurricane

Mobile Homes	
Flood in Cat 2	36
Unsafe in Cat 2	48
Expect Evac Notice in Cat 2	82
Would Evac in Cat 2	-
Would Comply in Cat 2	68

Table 6. Perceived Vulnerability, Expectation of Receiving an Evacuation Notice from Officials, and Evacuation Intentions in a 125 MPH Category 3 Hurricane

Mobile Homes	
Flood in Cat 3	61
Unsafe in Cat 3	75
Expect Evac Notice in Cat 3	96
Would Evac in Cat 3	-
Would Comply in Cat 3	86

Table 7. Perceived Vulnerability, Expectation of Receiving an Evacuation Notice from Officials, and Evacuation Intentions in a 155 MPH Category 4 (nearly 5) Hurricane

Mobile Homes	
Flood in Cat 4-5	86
Unsafe in Cat 4-5	98
Expect Evac Notice in Cat 4-5	98
Would Evac in Cat 4-5	-
Would Comply in Cat 4-5	93

Table 8. Evacuation in Georges, Ivan, and Wilma and Type of Evacuation Notice Heard, if any

Mobile Homes	
Evacuated in Georges	67
Heard Must	48
Heard Should	29
Heard Neither	24
Evacuated in Ivan	40
Heard Must	33
Heard Should	17
Heard Neither	50
Evacuated in Wilma	41
Heard Must	44
Heard Should	22
Heard Neither	33

Monroe County

Table 9. Evacuation in Georges, Ivan, and Wilma, Depending on Type of Evacuation Notice Heard

	Site-Built Homes	Mobile Homes
Evacuated in Georges IF		
Heard Must	56	-
Heard Should	41	-
Heard Neither	23	80 (n=10)
Evacuated in Ivan IF	59	50 (n=10)
Heard Must	32	-
Heard Should	11	33 (n=15)
Heard Neither		
Evacuated in Wilma IF		
Heard Must	43	42 (n=12)
Heard Should	32	-
Heard Neither	10	-