Shooting at Hurricanes: Disaster (Mis)Perceptions and (Un)Preparedness of Florida Undergraduates

Alyssa Collins
Samuel Cramer
Jacob Norlund
Jason L. Simms
Margarethe Kusenbach
Graham A. Tobin

July 2009
University of South Florida, Tampa

Undertaken as part of the University of South Florida REU Hurricane study (Funded by NSF: 0649060. Yavneh, N., Ersing, R.L., Kusenbach, M.B., Tobin, G.A. and Ward, B.G. (2007-10) *REU Site: Social Aspects of Hurricanes - Preparation, Response and Recovery with Vulnerable Populations and the Honors Program at USF*).

“My family would shoot many guns at the hurricane…”
-Survey Respondent

Table of Contents

Executive Summary

The goal of this research was to document and analyze the perceptions of undergraduate students about the nature of hurricanes and their preparations to deal with the threat of a hurricane landfall in their area. The research has direct applications in providing the university with information about the attitudes of its undergraduates toward hurricanes, and also in providing undergraduates with additional information through the university.

While disaster research has examined many different groups, one of the more overlooked segments is that of student populations and the effects that such events can have on them. The research that has been undertaken shows that students are generally a more vulnerable group to catastrophe than some other segments of the communities in which they reside. Variables like age, gender, type of residence, and owning a pet all contribute to the viewpoints that students hold with respect to hurricanes, and these views significantly influence how students prepare for hurricanes or perceive their current level of preparedness. Based on the literature, several questions were raised with respect to undergraduate student populations and their perceptions towards hurricanes, namely:

1. How do undergraduates perceive their ongoing risk from land falling hurricanes?
2. What are the main contributing factors to student risk from hurricanes?
3. What have undergraduates done to prepare for hurricanes, if anything?
4. How do undergraduates perceive their university's role in providing them proper information on hurricanes?

The study area for this research was the main campus of the University of South Florida (USF) located in Tampa, Florida, home to a large and diverse student body hailing mostly from Hillsborough County and surrounding areas, but also including a significant number of students from other states and countries. The site was chosen because of the large population of undergraduates on campus for summer, its diverse student body, and the proximity to our study locus. This combination of factors makes USF an adequate location to conduct a study.

Results showed:

- The city of Tampa is situated in a high hazard risk area; the community is exposed to hurricane activity, lies within the storm surge zones even for low category events and has a highly vulnerable population.
- Undergraduates overestimate the likelihood of a hurricane or a tropical storm coming to Tampa in any given season, but do not show an equivalent level of concern for these systems. Undergraduates also tended to be fairly neutral when asked their perceived level of preparedness. It may be concluded that while undergraduates are aware of Tampa's vulnerability to hurricanes, they take it lightly.
- While many undergraduates at USF have experienced a hurricane, most did not evacuate for the last one experienced, and the majority has not made any preparations this season. Undergraduates may be under the belief that since they survived the last hurricane, they can survive again for the next system.

- A majority of students believe that USF has not done a good job providing them with information on hurricanes, and that USF has never given them any information on hurricanes. However, analysis of the data found that students in dormitories were more likely to state that USF has provided them with good information on hurricanes. Given that USF is moving toward becoming less of a commuter school by requiring all freshmen to live on campus, this is an encouraging sign that the university is being proactive in making sure that at least its on-campus students are informed about hurricanes.
- The research showed that students who have made preparations for hurricanes tend to be more confident in their ability to deal with hurricanes, and those who have made evacuation plans are more confident in their ability to evacuate quickly.

From these findings our research team recommends that:

- USF should look further into the possibility of a hurricane workshop for undergraduates. With over half of the student body stating that a workshop of some sort on hurricanes would be useful to them, and the team finding that many students are misinformed on basic information about hurricanes, a workshop giving information on these disasters could be very useful to the undergraduate community.
- Students with pets need to receive more information on how to prepare for hurricanes. From our research, it is obvious that USF needs to better inform students about hurricanes and it is also clear that a large number of students own pets. Therefore, USF should make sure to include important information on pets in hurricanes with the rest of their hurricane preparedness information.

- USF should make MoBull a requirement for all students on campus. When incoming freshmen register, their phone numbers should be input into a database and their phones automatically registered for MoBull. That way all students can have access to the same information and USF can distribute information in a timely manner.

Chapter One: Introduction

Natural hazards – of which hurricanes are a potent and formidable example - represent a major threat to communities. One need look no further than the ongoing problems and devastation in and around much of southern Louisiana and Mississippi to know that few locations are properly prepared for even a relatively weak storm.

Indeed, hurricanes Katrina and Rita underscored the extreme state of vulnerability in which many residents of coastal towns in the South live, whether as a result of poverty, age, disability, or other factors. High rates of these vulnerability factors are pervasive in many parts of the South, and the depressing fact is that the lack of effective preparation for natural hazards constitutes a looming threat to the economic and social conditions of numerous communities.

This paper focused on a population whose vulnerability to hurricanes remains understudied, undergraduate students, and how they perceive their risks and level of preparations with regards to hurricanes. The goal of this research was to uncover, to analyze, and to explain a variety of obstacles faced by college students when preparing for disasters and planning for evacuation in a highly-exposed, hazardous environment.

The research also had an applied goal: providing research and information for those charged with the preparation and protection of students. We hope that campus administrators and

preparedness officials in all hurricane-prone areas will be able to use the insights provided by our study and contained within this report to more effectively impart preparedness information, and in doing so, create a safer campus environment.

Chapter Two:
Background and Literature

Theoretical Background

Research on natural hazards has evolved over the last couple of decades into a comprehensive discipline that includes not only geophysical aspects of hazards and disasters, but also social, economic and political concerns (Tobin and Montz 1997). As a result, human interactions with their social, economic, and political realities have gained increasing prominence in disaster literature. Disasters are no longer something that happens to people; rather, disasters are better characterized as the intersection of a hazard with a vulnerable group or population. The understanding that humans are at least partly responsible for creating vulnerability (either for themselves or for others) to natural hazards has led to social sciences taking a more active interest in hazards research. Out of this research has come the realization that terminology such as "risk" and "vulnerability" can have very different meanings among and even within disciplines. In this section, we briefly examine how these and other questions relate to our research.

Risk

Within disaster research, terms such as "hazard," "disaster," "risk," and "vulnerability" have often been used in different and sometimes interchangeable ways over the years and across academic disciplines (Cardona 2004; Tobin and Montz 1997). For example, over the last three

decades or so, the term "risk" has been defined in several ways, including the number of dead, the probability of an event occurring, or some combination thereof (Tobin et al. 2005:9-11). For the purposes of this research, we have defined *risk* (following Cutter [1996]) as the "likelihood or probability that an event will occur." In doing so, we can readily compare residents' perceptions of risk with the statistical geophysical probability of an event (Oliver-Smith 1996:319; see also Douglas and Wildavsky 1982; Wolfe 1988) as well as what actions residents take as a result of their perceptions. The concept of risk is relevant for our research because we are interested in how risk is perceived by the target population. In other words, we do not measure and discuss the actual probability of a hurricane strike but investigate the subjective knowledge and beliefs study participants communicate because we hypothesize that it is the *perceived* risk that determines preparation and evacuation behaviors.

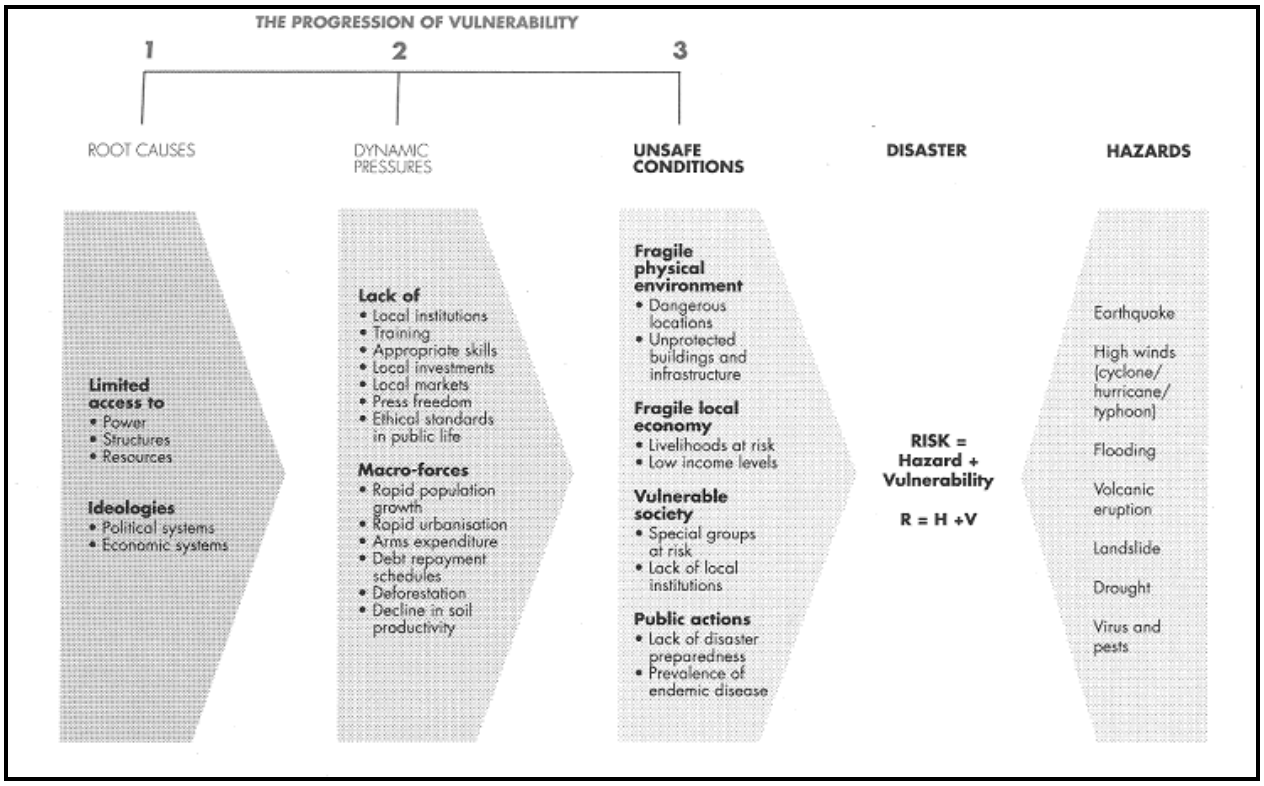
Vulnerability

It is clear that natural hazards are potential threats to society. The word *potential* is crucial in this context, because a *hazard* does not become a *disaster* until it intersects with some vulnerable group or society (Hoffman and Oliver-Smith 2002). For example, a Category 5 hurricane, even with its incredible destructive potential, that never makes landfall is certainly a hazard but cannot be classified as a disaster. The problem, however, is that vulnerability is extremely difficult to measure.

Vulnerability, whether at a community or individual level, is comprised of a number of environmental, social, economic, and political factors. One of the most-used paradigms to

understand disasters (in terms of the intersection of risk, vulnerability, and hazards) is the Pressure and Release Model (PAR) of Wisner et al. (2004).

Figure 2.1: Pressure and Release Model of Wisner et. al (2004).



This model describes the social and geophysical "pressure building" that develops from endemic root causes, social problems (e.g., poverty, lack of power, poor community health, etc.), unsafe living conditions or geographic location, and, finally, intersection with a natural hazard that thus results in a disaster (Wisner et al. 2004:51). Indeed, hazards and disasters are part of natural and social processes that unfold over time rather than isolated events that happen within exact time frames (Oliver-Smith and Hoffman 2002:3).

While several researchers have extended this model to create and use social vulnerability indices (e.g., Chakraborty et al. 2005; Cutter et al. 2000), we are not using such an index in this research. Instead, it is enough to note that we are looking at several variables that directly contribute to social vulnerability, and that the population of interest to us (undergraduate college students) is at the same time a resilient and a vulnerable group. A relative lack of physical possessions and stake in their surroundings may help students bounce back mentally from the emotional stresses of a disaster, since loss of possessions and keepsakes can be a major cause of emotional stress in humans. College students also take part in a vital network of resources (financial aid, friends, mentors) that is provided in the university setting. Higher education, renter status, and usual good health can also contribute greatly to college students' resilience.

On the other hand, undergraduate students could be considered more vulnerable than other populations because of their young age. Typical undergraduate students are presumed to lack life experiences in comparison with older populations and same-age peers who are not students, meaning they typically lived through only a short period of making responsible decisions for themselves, and dependent others. It is thus not only their young age but presumably also their status as students that might leave them less prepared than others in dealing with disasters. Further, undergraduate students, presumably like all young adults, seem to underestimate the danger of natural and social events, as well and some of their own actions. And even if they perceive the actual risks correctly, they are more likely not to feel personally affected or threatened by what might happen. A certain (sub)cultural stance of "invincibility" might thus compromise their preparedness and ability to recover from disasters. Also, families often provide much-needed support during disasters, and many students live away from home during college.

This can cause distress when students and their families are disconnected and cannot communicate very well, let alone help each other. Clearly, students have both advantages and disadvantages when it comes to dealing with disasters.

Hazard Literature and Students

The existing research literature on students and disasters in general, and on undergraduate students and their preparedness for hurricanes specifically, is scarce, given the large body of research available on other potentially vulnerable populations, and the large number of undergraduate students who are potentially exposed to hurricane threats in summer and fall semesters at US universities in the South and along the East Coast. Most of the existing research focuses on examining the effects of actual disasters on undergraduate students. In the following sections, we review the few previous studies we were able to locate, as well as some literature on related populations and hazards.

Research on Student Preparedness and Recovery from Disasters

In their study of tornadoes, John-Paul Mulilis and his colleagues (2000) hypothesized that the undergraduate student population features several key attributes that makes them simultaneously more vulnerable to the effects of disasters than the general population. According to the utilized Person-Relative-to-Event theory, non-students are expected to be more prepared to deal with tornadoes than students, with non-student homeowners displaying the highest levels of preparedness. After surveying 469 respondents, the researchers concluded that their findings were consistent with the original hypotheses: homeowners were more prepared than non-student renters, and non-student renters were more prepared than students with respect to tornado

activity. The authors discuss that this scale of preparedness is determined by a combination of advantages that non-students have over students, such as more life experience, more access to resources and a better appraisal of the situation.

A study conducted by Gill (2001) titled "Comparative Assessment of Impacts and Recovery from Hurricane Floyd among Student and Community Households" found that seventy-one percent of students evacuated to their families' homes (Gill et al. 2006 cited in Willigen et al. 2005). Further, the research by Gill and collaborators revealed that students reported many negative effects of the hurricane, especially concerning their health; students seemed to be prone to fatigue, sleep problems, headaches, etc. after the storm. To get another look at hurricanes and student populations, a later article by the same research team (Gill, Ladd, & Marszalek, 2007), discussed not only the effects of Hurricane Katrina on university students, but also compared its effect on students at four affected schools: Xavier University, University of New Orleans, Loyola University New Orleans, and Mississippi State University. They found that students faced extreme psychological problems, and also the loss of physical property.

Next, a study conducted by David N. Sattler and colleagues (2002) investigated the effects of Hurricane Georges on college students and their psychological condition according to the Conservation of Resources (COR) stress theory. Data from 697 survey participants showed that symptoms of Acute Stress Disorder (ASD) were positively correlated with resource loss. Minimizing these effects would require a return to normalcy by communities as quickly as possible after the disaster. The data also showed that individuals who were better prepared for the storm exhibited fewer symptoms of ASD and were better able to cope afterwards, and that

there is a direct link between the level of disaster preparedness and psychological stress and depression experienced afterwards among college students. This study therefore provides a direct mandate to assess and improve disaster preparedness in the student population.

As discussed, despite the many vulnerabilities undergraduate students display in comparison with the general population, being a student also carries its own strengths when it comes to dealing with the aftermath of disasters. In their study, Willigen and colleagues (2005) hypothesized that students' housing would take more damage as a result of students living in low rent areas. They also hypothesized that students would have less disposable income after a disaster but receive more financial aid from their family; would be less likely to heed evacuation warnings than others; and that they would have fewer family members in the area to provide practical support. The researchers also hypothesized that nontraditional students with families would suffer more damage than other students. After surveying 852 students and 309 community members, Willigen and collaborators concluded that community residents were much more negatively affected by the hurricane than students. Surprisingly, they also found that community members were less likely to receive help than students. Results showed that outcomes for the student population were not affected by differences in gender, income, and ethnicity, but that these factors played an important role in determining the outcomes and conditions of non-student community members. Researchers thus concluded that the student status provides a buffer for demographic factors that play an important role in determining vulnerability and recovery in other populations (Willigen et al. 2005, 185-188). This interesting result suggests that students are indeed a sub-cultural group that needs to be studied in its own right.

Universities and Student Assistance

Universities can also play an important role in helping students recover emotionally from the effects of a disaster. Gutierrez, Hollister, and Beninato (2005) surveyed a group of 107 students at Valencia Community College in Orlando after the devastating hurricanes of 2004 that observed whether or not adjustments to courses after the hurricanes lessened any stress for the students. The researchers found that over 70 percent of students reported that specific course adjustments helped to reduce stress, while a tremendous 100 percent indicated that overall course adjustments helped reduce stress. This suggests that assistance from schools aids students in recovering emotionally after hurricanes strike the area. Stein, et al. (2007) analyzed the connectedness of certain organizations on a college campus, specifically in regards to emergency situations, including the institutional aspects of disaster preparedness. Their results revealed that the campus has an extremely low degree of connectedness among not only their primary resource (the Counseling Center), but also among other groups (the Red Cross, student life) as well. The results were used to form a committee that would meet in emergency cases to better utilize and connect all resources available.

Bolstering the importance of universities' abilities to educate their students on disasters, the research undertaken by Carlino et al. (2007) surveyed the risk knowledge and perception of high school students living near Mt. Vesuvius in central Italy. Having theorized that low levels of risk perception could lead to an inadequate response on the part of the people, and therefore a "serious crisis management problem" (p. 230), they distributed written questionnaires to 400 high school students living in the "red zone" of Mt. Vesuvius, some of whom had participated in "volcanic risk education programs" (p. 232). They found that while the respondents had a

reasonable perception of the risk involved with living near an active volcano, they did not accurately rank the dangers associated with volcanic eruption. The authors attributed the erroneous responses to a lack of volcanic risk education in the classroom, and thought that respondents would have trouble making informed decisions in the case of an eruption. Most importantly, the study discovered that students who had previously participated in risk education programs had better risk awareness and less hazard-related fears. This correlates with previous studies by the same team, and provides strong support for the implementation of such programs (p. 241).

Other Populations and Disasters

Because the extent of research on student populations and disasters is limited, other transient populations had to be studied in order to gain an approximation of the needs and responses of the undergraduate populations in disaster areas. Johnston et al. (2007) conducted a disaster preparedness survey with coastal Washington hotel staff as the respondents, and tourists and tsunamis as the subjects of concern. Their findings were alarming: at only four out of 22 establishments did employees report that they had received tsunami-related training; only one had an ongoing tsunami training program. While all fulfilled the legal (fire, etc) signage requirements, only four had signs specific to tsunamis, and at just one were the signs evident to guests not looking for them. The research team suggested a further study to evaluate employee knowledge, as well as disaster training for tourism personnel, and implementation of policies that empower firms to complete these tasks prior to the disaster rather than after.

Ilan Kelman et al. (2008) interviewed eyewitnesses to the December 26 tsunamis in South Asia to determine how future disasters could be mitigated in the area and how tourists can be better prepared for future disasters. The interviews demonstrated that a majority of the interviewees had limited knowledge of the warning signs for tsunamis and of the destructive capabilities of such waves. The survey also indicated that the interviewees wished that they had had access to a tsunami early warning system, or that the resorts had done more to educate tourists on the dangers of tsunamis, and that the resorts had been better prepared with first aid and supplies.

Meheux and colleagues (2004) focused on the tourist industry on Small Island Developing States and how perceptions of hazards on these islands have affected preparations the industry has taken to mitigate disaster effects. Generally, high levels of perception were found to be correlated with high levels of disaster effect mitigation. The authors concluded that over- or under-estimations of different disasters need to be corrected so that the industry can be more effective with its mitigation strategies and allocation of resources.

Summary

One motive behind this research endeavor pertains to the scarcity of existing data on the subject being studied. Very little focused research has been undertaken on how students prepare for and perceive hurricane risks. Therefore, with the limited time resources available it was necessary to broaden the literature review to include studies of student perceptions of other natural disasters, as well as how different transient populations prepare for such events. Although hurricanes have certain particularities in their effects on different individuals, many of the principles contained within these articles also have applicability to student populations. A common theme that

resonated through all of the literature reviewed was the importance of proper *education*, as well as the supremacy of perception. These concepts go hand-in-hand; if one is poorly or improperly educated about a hazard – whether in how one should prepare for it, how often it manifests itself, etc. – their often inaccurate perceptions will shape their actions, with unintended consequences. The literature revealed that many areas inhabited by migrant populations do not have adequate training or preparation methods in place to deal with these populations should a disaster arise, and that better strategies are needed in these places for the local population to effectively handle their transient residents. Additionally, at least one study revealed that if these populations are better prepared and educated about disaster strategies, then the psychological toll on these populations will be minimized and normality in the area can be reinstated at a faster rate (Sattler, 2002). So, transient populations and the services that cater to them need to have better education programs and training to prepare them for the likelihood of a disaster in their area. In this context, students are very much transient populations.

Research Questions and Hypotheses

Based on the literature discussed above, several research questions related to students' perceptions and knowledge about hurricanes were formulated. In addition to collecting generalized data on the student population's perceptions of hurricanes, the study also explored two additional topics of interest: students' perception of hurricane preparedness if they have pets as opposed to them not having pets, and students' perceptions of a need for a hurricane preparation workshop. This research, then, focused on several questions, particularly:

1. How do undergraduates perceive their ongoing risk from land falling hurricanes?
2. What are the main contributing factors to student risk from hurricanes?

3. What have undergraduates done to prepare for hurricanes, if anything?
4. How do undergraduates perceive their university's role in providing them proper information on hurricanes?

With these goals in mind, the following hypotheses were formulated:

1. If students own pets, then they will be more likely to learn about shelters and evacuation routes on their own, since the concern for their pet will lead them to take preventative measures on behalf of their pet.
2. If students perceive that they are unprepared for a land falling hurricane, then they will perceive a greater need for a university-sponsored workshop on hurricane preparation.
3. If students perceive their residences to be lacking in structural integrity, then they will be more likely to evacuate their residences.
4. If students perceive that their universities should take a greater role in their notification of disasters, then they will be more likely to sign up for notification protocols sponsored by the university.
5. If students are well-prepared about hurricanes, then they perceive that the university has done a good job educating them about hurricane preparations.
6. If students feel like their residences adequately shelter them from hurricanes, they will be less concerned about the likelihood of a hurricane strike.

Chapter Three:
Research Methods and Data

Data Collection and Analysis

The research team consisted of three REU students, two faculty mentors, and one Ph.D. student. The faculty mentors and the Ph.D. student decided on an overall topic, applied for and received IRB approval, and organized regular meetings. They assisted the REU students with survey design, sampling strategies, statistical analysis and interpretation, and provided feedback on the final products. The REU students were solely responsible for data collection, data entry, background research, and the content of the report, poster, and presentations. All members of the research team were involved in each aspect of the research.

It was decided to investigate the perceptions and preparedness of a sample of USF students regarding the ongoing hurricane 2009 season. At the first meeting, the team decided to limit the survey to undergraduates because of the larger size of this population and its presumed greater vulnerability as compared with graduate students, faculty and staff. Furthermore, it was decided to use an in-person survey (i.e. face-to face interviews) because this method was deemed the most comprehensive and efficient. A questionnaire consisting of three parts (perceptions, experiences and preparedness, and background) with a total of 39 items was designed, pilot tested, and modified (see Appendix A for the final draft). It should be noted at this point that we were not able to conduct an extensive pre-test of the survey instrument as it should be done under normal circumstances, yet we did the best we could given the limited time frame. The

survey was primarily composed of yes/no and Likert scale questions so as to keep the length of the interviews manageable (approximately ten minutes) and to facilitate statistical analysis. An information letter that was provided to all participants, as well as final IRB approval for the study, are provided in Appendices B and C of this report.

Regarding sampling strategy, it was decided to utilize a convenience sample of participants because a true random sample would have been challenging and time-consuming to obtain under the constraints of the research. However, efforts were made to limit bias and to recruit as diverse a set of participants as possible. The team decided on thirteen on-campus locations to recruit participants either inside or outside buildings in areas where students typically congregate. These locations included the USF library, campus bookstore, newly built student center (Marshall Center), the engineering quad, gym, mass communications building, business building, medical area, administration building, dorms, psychology building, fraternity and sorority housing area, and arts and sciences classroom building. On-campus research locations are shown on the map found in Appendices D, with some also depicted in Figures 3.1 to 3.8. These sites are generally considered the most trafficked areas of the university. Further, it is important to note that many of these areas are used by a mix of majors and levels, and by on- and off-campus residents alike. We also tried to maximize diversity by varying the days and times of data collection. Data were collected during a time period spanning three weeks in June and July of 2009, on all days of the week, and between 10 a.m. and 11:30 p.m. When researchers approached potential participants, they first asked whether he or she was an undergraduate student and only proceeded to enroll persons who answered affirmatively. Overall, we estimate that forty percent of approached persons rejected participation.

Figure 3.1: Courtyard Outside of the Marshall Student Center and Bookstore

Figure 3.2: Student Researcher Aly Collins Interviewing an Undergraduate in the Courtyard

Figure 3.3: Inside of the Newly Built Marshall Student Center

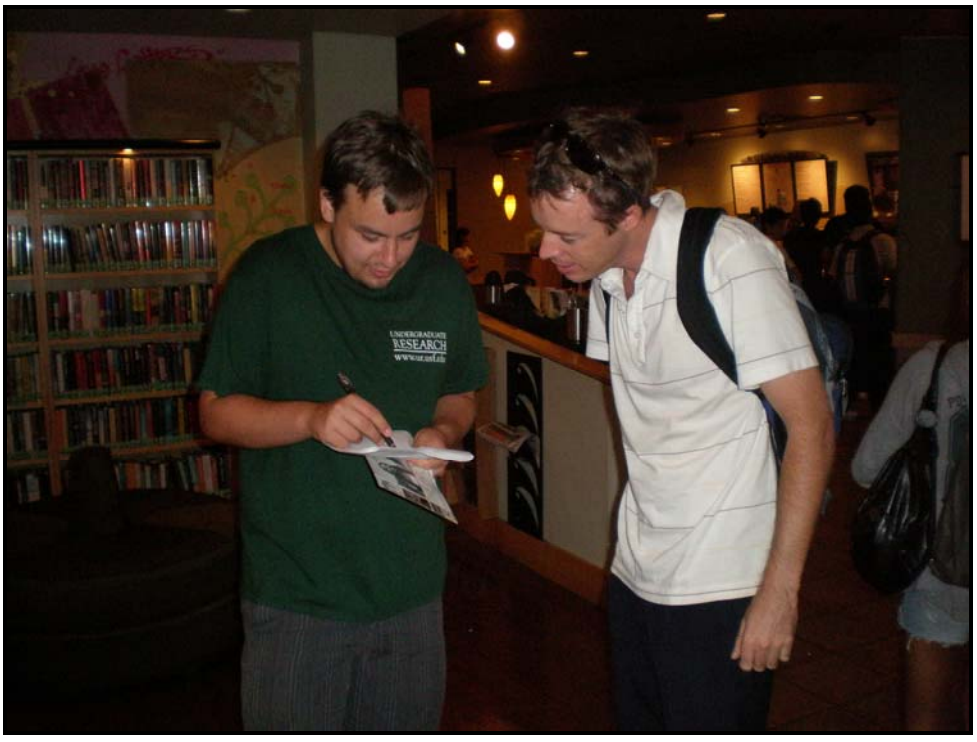
Figure 3.4: Student Research Team Giving Interviews in the Student Center

Figure 3.5: Outside the Library

Figure 3.6: Student Researcher Sam Cramer, Interviewing a Student

Figure 3.7: Inside the Library

Figure 3.8: Student Researcher Jacob Norlund Interviewing a Student in the Library



As is typical of survey research and in order to protect the confidentiality and anonymity of respondents, no names or addresses were requested by the researchers. Surveys were identified only by one of the three interviewers' first initial and numbered sequentially as the interviews took place. Each researcher entered the surveys he or she completed into an SPSS database that was provided by one of the faculty mentors to facilitate data analysis. Only members of the research team were given access to the various copies of the data set. Hardcopies of surveys are kept in a locked file cabinet in one of the faculty mentors' offices and will be kept safely for three years before being destroyed.

During the analysis phase, it was first necessary to prepare the data for analysis as much as possible by cleaning the data set, reconfiguring categories and removing cases missing important information. Two incomplete surveys were removed at this time. We then determined and analyzed the frequencies of all answered categories. Next, we utilized chi-square analysis to test our hypotheses and generate additional significant findings. This method of analysis resulted in statistical correlations between independent (such as gender) and dependent variables (such as willingness to evacuate).

Sample Characteristics

The final sample population consisted of 217 undergraduate students. Obviously, this is a relatively small sample, given the overall number of USF undergraduate students enrolled in the summer terms (approximately 21,817), but it still reflects a meaningful cross-section of the USF student body. How the study sample compares with the overall population based on the available information (see Appendix E for details) is discussed below.

Gender and Race

The demographic make-up of the research sample compares favorably with that of the overall USF undergraduate population of summer 2009. Approximately fifty-three percent of survey respondents were female and forty-seven percent were males; as shown in Table 3.1, this is similar to the fifty-eight percent/forty-one percent split of the overall undergraduate student population along gender lines. It is presumed that female respondents were slightly overrepresented because they were less likely to reject participation than male students.

Table 3.1: Gender and Race

	Sample (%)	USF (%)
African American	15.2	13.6
Hispanic	12. 9	14.0
American Indian	0.9	6.3
Asian/Pacific Islander	12. 9	0.5
White	55.3	62.8
Other	2.8	1.7
Male	47.2	41.4
Female	52.8	58.5

Likewise, the racial/ethnic composition of the study sample reflected for the most part that of the overall population (Table 3.1). Self-identified African-American students were slightly overrepresented (by about two percent) but students identifying themselves as Asian/Pacific Islanders were much more numerous than in the overall population (about twelve percent higher). This resulted in the fact that the proportion of student participants identifying as "Hispanic," "White," and "American Indian" were slightly under-represented in our sample, by seven and a half percent at the most.

While it is not perfect, we conclude that the gender and racial/ethnic make-up of survey participants is sufficiently representative of the overall population to allow for generalizations.

Next, we discuss additional characteristics of the sample population for which comparative information was not available or accessed.

Age and Student Status

Most (eighty-six percent) of the study sample fell in the "typical" undergraduate age range of eighteen to twenty-four. The remaining fourteen percent were from twenty-five to thirty-nine years old.

The vast majority of interviewees (eighty-eight percent; Table 3.2) were "regular" USF students. The rest were visiting students, such as REU participants and students from other universities. However, the majority of these visiting students identified Florida as their home state.

Table 3.2: Student Status

	Frequency	Percent
Regular USF Student	193	88.9
Visiting Student from Florida	12	5.5
Visiting From Area Affected by Hurricanes	2	0.9
Visiting From Other US State	7	3.2
Visiting From Foreign Country	1	0.5
Other	2	0.9
Total	217	100.0

Year in College and Major

The survey sample favored students in their third (twenty-seven percent) and fourth (thirty-five percent) years of college (Table 3.3). First and second year students accounted for about twenty-three percent of the overall sample population. "Other" students, typically in their fifth and sixth years of study, accounted for fifteen percent of the sample. Students identified a wide variety of

majors (Table 3.4); the most common were Biomedical Sciences (fifteen percent) and Psychology (six percent). No other major accounted for more than five percent of the sample.

Table 3.3: Year in College

	Frequency	Percent
First Year	24	11.1
Second Year	27	12.4
Third Year	58	26.7
Fourth Year	76	35.0
Other	32	14.7
Total	217	100.0

Table 3.4: Categories of Majors

	Frequency	Percent
Social Science and Business	88	40.6
Natural Science	25	11.5
Engineering and Computing	27	12.4
Medical	50	23.0
Education, Arts, Athletics	27	12.4
Total	217	100.0

Home State and Country

Sample participants identified a total of fifteen different home states. However, the vast majority of them (eighty-six percent) declared Florida as their home state. Only four percent of participants identified countries other than the United States. This figure closely resembles the number of international students at USF overall according to the USF International Homepage (2008).

Residency in Tampa

The median length of residency in Tampa at the time of the survey was approximately three years. Twenty percent of students had lived in Tampa for less than a year. The most had lived in Tampa for one to four years (forty-seven percent of students), and the rest (thirty-three percent) lived in Tampa from five to thirty-three years. Most respondents lived off-campus, in apartments (fifty percent) or houses (thirty percent). Only seventeen percent lived in the dorms (Table 3.5). Interviewees had a diverse range of living arrangements (Table 3.6), with the most common being living with friends (thirty-five percent).

Table 3.5: Residence Type in Tampa

	Frequency	Percent
Apartment	110	50.9
Dorm	37	17.1
House	67	31.0
Mobile Home	1	0.5
Other	1	0.5
Total	216	100.0
Missing	1	

Table 3.6: Living Arrangements

	Frequency	Percent
Alone	22	10.2
Friends	77	35.6
Partner/Family	26	12.0
Parent(s)	45	20.8
Other (Dorm)	46	21.3
Total	216	100.0
Missing	1	

Pet Ownership

Excluding those who lived in dorms (dorms do not allow pets), a surprisingly large number of students (about thirty-six percent) owned pets in Tampa. This is small compared to the approximate fifty-eight percent of general households that own a cat or a dog (U.S. pet ownership 2007, 2009), however it was expected that very few students would bring pets to school with them.

In conclusion, it was determined that the research team's survey techniques generated a good mix of students for the sample. The age and race demographics closely matched those of USF's population, and the other demographic statistics demonstrated that our sample represents a large range of undergraduate students. In our next chapter, other descriptive findings will be detailed to give more insight on the survey results.

Chapter Four:
Descriptive Findings

Introduction

The project yielded a total of 219 interviews, two of which had to be discarded because of missing data. Most of the rest were completed in full, providing an ample dataset from which to survey and analyze student knowledge, perceptions, and preparedness. The highlights of the survey included an over-estimation of hurricane probability, yet a low reported concern about hurricanes; low levels of preparedness; and confidence in one's dwelling and ability to evacuate.

Findings

Knowledge

The first two questions asked respondents the beginning and end dates of hurricane season. The correct answers for Tampa are June 1st and November 30th. A slight majority of respondents answered with the correct month for the start date; about one-ninth thought it began in May and 13 percent in July (Table 4.1). A minority (40 percent) chose a date in November for the end of the season (Table 4.2). From these two questions, each respondent's perceived length of the hurricane season was calculated (Table 4.3). A quarter of respondents believed six out of twelve months of the year were part of hurricane season; 17 percent chose five. The majority gave answers that were slightly too short apart, with the most common calculation from the two

answers being five months. The choice of too early of an end month probably accounted for much of this error.

While underestimating the length of the season, students tended to over-estimate that probability of a hurricane striking Tampa this year, and to approximate the correct probability of a tropical storm. The median perceived probability of a hurricane was thirty percent; answers, however, ranged from zero percent to seventy-five percent. The middle half of results ranged from fifteen percent to fifty percent. As for the chance of a tropical storm coming to Tampa, fifty-five percent was the median answer; half of the sample said between forty percent and about seventy-seven percent.

Table 4.1: Start of Hurricane Season Month

	Frequency	Percent
January	1	0.5
March	3	1.4
April	2	1.0
May	24	11.6
June	110	53.1
July	29	14.0
August	25	12.1
September	9	4.3
October	2	1.0
November	1	0.5
December	1	0.5
Total	207	100.0

Table 4.2: End of Hurricane Season Month

	Frequency	Percent
January	5	2.4
February	2	1.0
March	1	0.5
April	1	0.5
May	1	0.5
July	3	1.4
August	21	10.1
September	48	23.2
October	38	18.4
November	83	40.1
December	4	1.9
Total	207	100.0

Table 4.3: Length of Hurricane Season

Months	Frequency	Percent
2	8	3.9
3	33	15.9
4	57	27.5
5	37	17.9
6	54	26.1
7	12	5.8
8	2	1.0
9	1	0.5
10	1	0.5
12	2	1.0
Total	207	100.0

Perceptions of Concern and Readiness

Despite exaggerating the probability, roughly a quarter of respondents each reported that they were "Somewhat Concerned", "Neutral", or "Not Really Concerned" about a hurricane coming to their area in this season. Only eight percent were "Very Concerned", while 14 percent chose "Not Concerned at All" (Table 4.4). A similar distribution was observed in participants' self-evaluations of their preparedness (Table 4.5), in which only 8 percent considered themselves "very well prepared", while twenty-two, twenty-six, and twenty-six percent were "Well Prepared", "Neutral", and "Not Well Prepared" respectively. Approximately one-fifth of respondents judged themselves to not be prepared at all.

Table 4.4: Concern over Hurricane Hitting Tampa

	Frequency	Percent
Very Concerned	17	7.8
Somewhat Concerned	60	27.6
Neutral	52	24.0
Not Really Concerned	57	26.3
Not Concerned at All	31	14.3
Total	217	100.0

Table 4.5: How Well Prepared for Hurricanes This Season

	Frequency	Percent
Very Well Prepared	18	8.3
Well Prepared	47	21.7
Neutral	57	26.3
Not Well Prepared	56	25.8
Not Prepared at All	39	18.0
Total	217	100.0

When asked essentially the same question ("How would you rate your overall readiness for hurricanes this season") as Question A.4 ("How well prepared do you feel for this hurricane season?), except after listing their preparations and evacuation plans (or lack thereof), similar results were obtained, with roughly one-quarter each choosing the three middle responses: "Somewhat Ready", "Neutral", or "Not Quite Ready". However, the percentage of respondents who judged themselves to be "Very Ready" fell roughly three percentage points (Table 4.6).

Table 4.6: How Ready are You for Hurricanes

	Frequency	Percent
Very ready	11	5.1
Somewhat Ready	53	24.4
Neutral	57	26.3
Not Quite ready	58	26.7
Not Ready at All	38	17.5
Total	217	100.0

Previous Experience

The broad majority of respondents had previously experienced a hurricane (Table 4.7), but only fourteen percent of them evacuated for the last hurricane that they had experienced (Table 4.8). Of those who did, equal numbers (thirty-five percent each) went to a friend's house or hotel/motel. Only one respondent reported going to a shelter (Table 4.9).

Table 4.7: Percent Who Have Experienced a Hurricane

	Frequency	Percent
Yes	167	77.0
No	50	23.0
Total	217	100.0

Table 4.8: Evacuation Rate for Last Hurricane

	Frequency	Percent
Yes	23	13.9
No	143	86.1
Total	166	100.0

Table 4.9: To Where did you Evacuate for the Last Hurricane

	Frequency	Percent
Family Members Home	8	34.8
Friend's Home	5	21.7
Shelter	1	4.3
Hotel/Motel	8	34.8
Other	1	4.3
Total	23	100.0

Preparations

Despite the respondents' previous experience with hurricanes, most participants did not report making preparations for hurricane season (Table 4.10). Of the sizable minority (thirty-seven percent) that did, the most common measures included storing non-perishable food and water, buying generators, and installing storm shutters.

Table 4.10: Hurricane Preparations

	Frequency	Percent
Yes	80	36.9
No	137	63.1
Total	217	100.0

Evacuation Plans

The lack of preparation extended to a lack of planning. Although seventy-nine percent of respondents said they would leave their home in the case of an evacuation order (Table 4.11), only one-quarter of all respondents (and also of those who said they would leave) actually had an evacuation plan in place. A little over half of all participants (with or without plans) said they would most likely evacuate to a family member's home; eighteen percent chose "Other", many of whom told the interviewer that "it depends on where the hurricane is going." Only 14 percent said they would go to a shelter; fewer respondents still said they would visit a family member or hotel/motel. Most participants anticipated evacuating by personal car (seventy-five percent, Table 4.12); an additional sixteen percent thought they would get a ride from a friend or family member.

Table 4.11: Will Evacuate for Coming Hurricane

	Frequency	Percent
Yes	171	78.8
No	19	8.8
Don't Know	27	12.4
Total	217	100.0

Table 4.12: Method of Evacuation

	Frequency	Percent
Own Car	165	76.0
Ride With Friend	10	4.6
Public Transportation	8	3.7
Rely on Parent or Family	25	11.5
Other	9	4.1
Total	217	100.0

Students had little idea where they would go if the hurricane warning escalated into an evacuation order, and they were unable to go to their planned evacuation destination. Asked where the nearest shelter was, three-fifths of students gave answers along the lines of “don’t know,” “not sure,” and their equivalents. The most popular specific answer (representing eight percent of respondents) was the Sundome, which is actually a special-needs only evacuation shelter. Only two students gave the correct answer for the USF campus (Pizzo Elementary School), though many interpreted it as asking the closest shelter to their *home*. Various miscellaneous answers were given by the rest of the sample, including "library near my house" "downtown" and "out of state." However, it is significant that the majority of students simply did not know the nearest shelter - with or without qualification as to whether it was to USF or to their home - and the most popular option would not be available to most students in the case of a hurricane event.

Table 4.13: Evacuate Where This Time

	Frequency	Percent
Family Members Home	112	51.9
Friend's Home	20	9.3
Shelter	31	14.4
Hotel/Motel	15	6.9
Other	38	17.6
Total	216	100.0

Awareness

The vast majority of students (Table 4.14) believed they would find out about a hurricane watch or warning through the TV, radio, or other forms of mass media. Almost all of the remaining

respondents said they would either receive a USF announcement or hear about the advisory from a friend or family member.

Nearly all respondents were aware of MoBull (Table 4.15), USF's free emergency alert text message system, indicating that the university has successfully marketed the program. Of the eighty-nine percent that were aware of it, almost three-quarters were signed up for it (Table 4.16). However, just eighteen percent of students reported that they had received some hurricane preparedness information from USF (Table 4.17). However, this question immediately followed the MoBull questions, and it appeared that many respondents mistook the question to refer solely to information received through the MoBull system.

Table 4.14: Method of Obtaining Hurricane Information

	Frequency	Percent
Media	177	81.6
USF Announcement	19	8.8
Friend/Family	19	8.8
Other	2	0.9
Total	217	100.0

Table 4.15: Aware of MoBull

	Frequency	Percent
Yes	194	89.4
No	23	10.6
Total	217	100.0

Table 4.16: Signed Up For MoBull

	Frequency	Percent
Yes	160	75.8
No	51	24.2
Total	211	100.0

Table 4.17: Received Hurricane Information from USF

	Frequency	Percent
Yes	39	18.1
No	177	81.9
Total	216	100.0

Scaled Questions

After answering questions about their sources of information, respondents were asked to rate their disagreement or agreement with four statements on a scale of one to five. For the first statement, "My current residence is able to withstand a hurricane" (Table 4.18), most respondents either somewhat agreed (thirty-six percent) or neither agreed nor disagreed (twenty-four percent).

Table 4.18: Residence Ability to Withstand Hurricanes

	Frequency	Percent
Strongly Disagree	24	11.1
Somewhat Disagree	28	12.9
Neither Disagree or Agree	53	24.4
Somewhat Agree	77	35.5
Strongly Agree	35	16.1
Total	217	100.0

Approximately one quarter of the respondents were not as confident in the resilience of their home. Students were more confident in their ability to evacuate in the case of a mandatory evacuation order (Table 4.19). Only eight percent disagreed or strongly disagreed with the statement.

Table 4.19: Ability to Evacuate Easily

	Frequency	Percent
Strongly Disagree	2	0.9
Somewhat Disagree	16	7.4
Neither Disagree or Agree	33	15.2
Somewhat Agree	97	44.7
Strongly Agree	69	31.8
Total	217	100.0

An element of disagreement came in with the question "USF had done a good job providing me with information on hurricane preparedness" (Table 4.20). The majority disagreed or strongly disagreed, though a considerable percentage of students neither agreed nor disagreed. Only eighteen percent positively rated the institution's delivery of hurricane information.

Table 4.19: USF Has Done a Good Job Providing Hurricane Information

	Frequency	Percent
Strongly Disagree	49	22.6
Somewhat Disagree	69	31.8
Neither Disagree or Agree	59	27.2
Somewhat Agree	28	12.9
Strongly Agree	12	5.5
Total	217	100.0

The last question asked if students thought a mandatory online workshop might be helpful. Although results varied widely, there was a demonstrable tendency towards support of a mandatory USF online workshop on hurricane preparedness (Table 4.21). Half of the students somewhat or strongly agreed that it would be helpful, while twenty-nine percent somewhat or strongly disagreed with the statement. Twenty percent of respondents felt neither way.

Table 4.21: Mandatory Hurricane Workshop is Useful

	Frequency	Percent
Strongly Disagree	28	12.9
Somewhat Disagree	34	15.7
Neither Disagree or Agree	44	20.3
Somewhat Agree	66	30.4
Strongly Agree	45	20.7
Total	217	100.0

Summary

The descriptive results of the survey raise a number of salient points. First, the respondents are aware of the Tampa Bay area's vulnerability to hurricanes and other tropical storms, with a significant number of participants vastly overestimating the likelihood of a hurricane strike this season. Yet even while exaggerating the chances of an event, a clear majority of participants reported that they were either unconcerned or neutral about a hurricane coming to their area. This lack of concern translated into a lack of preparation; barely one-third of respondents made any preparations for hurricane season, and most considered their level of preparedness poor or

"neutral." This is especially surprising in light of most of the group having previous hurricane experience.

Likewise, most students did not have an evacuation plan in place, even though the vast majority said they would evacuate if it were mandated. Most said they would take their car to a family member's home, yet if they were unable to do so, very few would be able to locate the nearest public evacuation shelter. Most would track the storm using TV, radio, or the internet, and they would also be notified via text message from USF, having signed up for MoBull.

Despite a lack of preparation and planning, most students felt optimistic about being able to evacuate in a timely matter, as well as about their home surviving. They were not as impressed, however, with USF's performance in educating them about hurricanes. As a solution, many felt that a mandatory online hurricane information workshop sponsored by the institution would be helpful. It is essential that the university take into account the students' lack of knowledge and preparations, apparent sense of invincibility, and dissatisfaction with the information the university has provided them.

Chapter Five:
Analysis and Results

Results of Testing Hypotheses

Introduction

After being entered into the professional-grade statistics package SPSS, the survey data were analyzed for relationships that might indicate the verity or falsehood of our hypotheses, as well as other unexpected links. In doing so, the team found a number of such connections. These included a positive correlation between optimism about residences being able to survive a hurricane and optimism about being to evacuate quickly; differences between inhabitants of different kinds of residences and their rating of the hurricane information USF provided; and a number of other statistically, and perhaps practically significant relations.

Residence Structural Integrity

It was hypothesized that the more students feel their residences adequately shelter them from hurricanes, the less concerned they will be about the likelihood of a hurricane strike. The survey, however, showed no significant association between respondents' confidence in their residence and their overall concern about hurricanes (Chi Square 5.092, df = 4, p = 0.278). Nevertheless, the confidence students had in ability of their residences to withstand a hurricane was strongly linked (Chi-Square 10.692, df = 4, p = 0.03) to their optimism about being able to evacuate quickly in the case of a mandatory evacuation order, but not to their concern about a hurricane

coming to their area (Chi-Square 5.092, df = 4, p = 0.278). Of those respondents who agreed or strongly agreed that their residence would survive a hurricane, fifty-four percent felt that they could evacuate quickly. Of those who disagreed or strongly disagreed with the first question, only twenty-two percent thought their house would be able to withstand a hurricane. Perhaps surprisingly, whether or not respondents had experienced a hurricane demonstrated no significant effect (Chi-Square 2.402, df = 4, p = 0.662) in their confidence in their home's ability to withstand a hurricane.

Major

Respondents' majors were split into five general categories: Social Sciences and Business; Natural Science; Engineering and Computing; Medical; and Education, Arts, and Athletics. It was expected that students' majors would be related to their level of concern, however, no significant difference (Chi-Square 4.985, df = 8, p = 0.759) was found between these variables. It was also thought that students in majors related to the hard sciences and social sciences would be more prepared as a result of possibly learning about hurricanes and their effects. Neither contention was supported by the results of the survey, with no significant relationship between major and self-assessed preparedness (p = 0.592) nor whether or not actual preparations were made (p = 0.603) found.

Type of Housing

The team hypothesized that students living in dormitories would feel that the university had done a better job of providing them with information on hurricanes than students living in other types of residences. There was a significant difference (Chi-Square 14.152, df = 4, p = 0.007) between

residents of different housing types and their rating of USF's job performance in providing them with hurricane information. Twenty-seven percent of students living in dorms "agreed" or "strongly agreed" that USF did a good job informing them, as compared to seventeen percent of those residing in off-campus apartments and sixteen percent of those living in houses or other types of dwellings. The difference may arise from students in campus housing receiving materials and support geared specifically towards them, such as alarm drills. However, approximately three-fifths of both apartment dwellers and dorm residents disagreed or strongly disagreed that USF did a good job. Interestingly, the highest "median" rating was given by those living in houses, with forty-two percent choosing "Neither agree nor disagree;" one speculates that homeowners (and children living with their parents) may feel that the school does not have as much of a responsibility to inform them.

Table 5.1: USF Provides Good Information Compared to Type of Residence

		Somewhat Disagree/Strongly Disagree	Neither Disagree or Agree	Somewhat Agree/Strongly Agree	Total
Apartment	Count	67	24	19	110
	percent	60.9	21.8	17.3	100
Dormitory	Count	22	5	10	37
	percent	59.5	13.5	27	100
House/Manufactured Home/Other	Count	29	29	11	69
	percent	42	42	15.9	100
Total	Count	118	58	40	216
	percent	54.6	26.9	18.5	100

USF Information Availability

The research team hypothesized that if students are well-prepared about hurricanes, then they will perceive that the university has done a good job educating them about hurricane preparations. Despite what was predicted, there was no significant association between satisfaction with the university's preparedness education and either of the two self-assessments

of hurricane readiness (Chi-Square 5.185, df = 4, p = 0.269; Chi-Square 2.379, df = 4, p = 0.666 respectively). Many undergraduates who perceived themselves as better prepared for hurricanes did not see the university as doing a good job of providing good hurricane preparation information. Undergraduates who had already experienced at least one hurricane tended to rate USF's job performance on informing them about hurricanes more favorably than those who did not have such an experience (Chi-Square 5.943, df = 2, p = 0.051), as did students who thought they could evacuate more easily (Chi-Square 10.967, df = 4, p = 0.027), though no group here gave the university a positive rating overall. There was no significant difference between perceptions that USF provided good information and a perceived need for a hurricane workshop (Chi-Square 21.952, df = 16, p = 0.145).

Hurricane Preparations and USF Course Need

The team hypothesized that if students perceive that they were unprepared for a hurricane, then they would perceive a greater need for a university-sponsored workshop on hurricane preparation. The data (see Table 2.3) showed that undergraduates' perceived level of preparedness varied markedly based on their perceived need for a USF- sponsored hurricane course (Chi-Square = 11.485, df = 4, p = 0.022). Indeed, 35.4 percent of undergraduates who felt well or very well prepared for hurricanes stated that they would still find a USF workshop on hurricanes to be useful to them, and over half (about fifty-one percent) of respondents feeling neutral about their hurricane preparedness revealed that they would find such a course to be necessary as well.

Pets

It was hypothesized that pet owners would take marginally greater efforts to prepare on behalf of their pets. The previously-cited statistics showing such low percentages of people with actual preparations or knowledge of pet-friendly shelters undermine this hypothesis, and there even proved to be no significant connection between pet ownership and self-perception of preparedness for hurricanes with the student population (Chi-Square 0.956, df = 2, p = 0.620).

The team also thought that students with pets would be more concerned about a hurricane hitting because of the added responsibility of a pet. However, no significant difference was found between owning pets and perception of preparedness for hurricanes (Chi-Square = 0.956, df = 2, p = 0.620). Students who owned pets did not even believe it would be more difficult to evacuate, as no significant difference was found between pet ownership and negative responses to the question about being able to evacuate easily (chi-square 0.691, df = 2, p = 0.708).

General Findings

Gender

It was expected that males and females would perceive hurricanes differently. A significant difference (Chi square 8.616, df = 3, p = 0.035) was noted between gender and respondents' perception of the probability of a hurricane hitting Tampa this year. Females were more likely to over-estimate the chance of a hurricane this year, while the median male answer was closer to the correct range. This overestimation might account for females being more concerned than males about the threat of a hurricane (Chi-Square 10.108, df = 2, p = 0.006). Forty-three percent of females (as opposed to twenty-seven percent of males) were "somewhat" or "strongly"

concerned about a hurricane coming to their area, while the majority (fifty-one percent) of males were “not very concerned” or “not at all concerned”.

Age

The age distribution of undergraduate students in the sample ranged from eighteen to thirty-nine years old; a substantial number were what might be called non-traditional students. It was hypothesized that this age distribution might reflect different perceptions and concerns towards hurricanes. The data supported this; there was a significant difference between age and level of concern for a hurricane hitting Tampa Bay this year. Fifty-nine percent of all non-traditional aged students (i.e. those students over 25 years of age) being somewhat or very concerned, while only 31 percent and 29 percent of younger age groups were somewhat or very concerned (Chi-Square 17.394, df = 4, p = 0.02). With this in mind, universities could better tailor their messages on hurricane preparedness according to the different age groups.

Perception vs. Concern

It was assumed that the higher percentage a respondent gave for chance of a hurricane hitting Tampa this year, the higher that person’s level of concern would be. The analysis supported this contention; there was a significant difference between these variables (Chi-Square 22.798, df = 6, p = 0.001). Respondents who estimated a low probability were markedly less concerned than those who estimated higher chances of a hurricane strike. However, there was no significant difference between respondents’ assessments of tropical storm probabilities and their concern for a hurricane coming to Tampa (Chi-Square 4.747, df = 6, p = 0.577). It might be thought that students who evacuated in the last hurricane would be more troubled about a hurricane hitting

Tampa this year, yet these students were not significantly more likely to be concerned (Chi-Square 1.305, df = 1, p = 0.253) .

Hurricane Experience

A little over three quarters (about seventy-seven percent) of the students surveyed had previously experienced a hurricane. Even though so many students had personally been through a hurricane, no significant difference in concern about a hurricane coming to Tampa this year was found between those who had and those who had not previously experienced a hurricane (Chi-Square 1.746, df = 2, p = 0.418).

Pets

A sizable minority (twenty-nine percent) of respondents owned pets in Tampa. Nearly two-thirds of pet-owning students had not made any preparations for their animals; an additional twenty-four percent said they would "take their animals with them." Only thirteen percent had made actual preparations. Only eighteen percent of the pet owners interviewed knew where the nearest animal-friendly shelter was. From these numbers, it is clear that with such a large percentage of students owning pets, information on how to prepare pets for hurricanes and also where to bring them in the case of evacuation is crucial.

Lastly, there was a significant difference between pet owners and non-owners in perceiving a need for a USF-sponsored hurricane course (Chi-Square 8.176, df = 2, p = 0.017). Whereas a little over fifty-seven percent of respondents without pets agreed with the statement that a hurricane course would be useful, only about twenty-one percent of respondents with pets

agreed. This seems to counter to the idea that pet owners would be more apt to seek out information that would help them prepare their pets and themselves for a hurricane strike.

Evacuation Perceptions and Plans

Self-Assessment of Hurricane Preparedness

Students assessed their own level of hurricane readiness twice, once at the beginning of the survey and then again after answering several questions about the specific preparations they made. A link was found between self-assessed preparedness as measured by these questions and having made preparations for hurricanes, as well as having an evacuation plan.

Pre-Existing Evacuation Plans

Respondents who had an evacuation plan perceived themselves to be more prepared for a hurricane than those who did not. The difference was statistically significant in responses to the first question (Chi-Square 11.769, d f= 0.03, p = 0.003), but considerably stronger in the validating question (Chi-Square 16.606, d f= 2, p = 0.000), which was asked after participants were questioned on the evacuation plans. The majority (fifty-one percent) of students without an evacuation plan judged themselves to be “not ready at all” or “not quite ready” on the second (validating) question. On the other hand, twenty-three percent of students with a plan in place answered this way, while nearly half (forty-nine percent) felt “very ready” or “somewhat ready.”

Preparations

Likewise, students who had made at least one preparation for the hurricane season demonstrated a much higher confidence in their preparedness than those who did not. The difference was again significant on the first question (Chi-Square 13.702, d f= 1, p = 0.001), but remained virtually unchanged after students were questioned on their preparations (Chi-Square 13.483, df = 2, p = 0.001). Approximately half (almost fifty percent) of students who had not made any preparations felt they were not well prepared or not prepared at all on the first question, increasing to a little over fifty-three percent on the validating question (which asked if they were "ready" rather than "prepared"). On the other hand, a slight majority (fifty-five percent) of those who had made plans answered that they were well prepared or very well prepared on the first question, while the figure decreased slightly to fifty-two percent when it was asked again. This may be the result of students often naming only one or two insufficient, or wholly ineffective, measures (i.e. shutters, "waterproof hat") they had taken to prepare for hurricanes.

Interestingly, a significant gender difference (Chi-Square 6.610, df = 2, p = 0.037) was noted in how ready students felt they were on the second validating question on hurricane preparations (but not on the first). Thirty-eight percent of males, in comparison to twenty-one percent of females, thought they were somewhat or very ready for a hurricane; nearly half of females, and thirty-nine percent of males, rated themselves not very ready or not ready at all. When retested on their perception of their hurricane readiness, females were more likely than males to rerates themselves less favorably.

Despite the relationships described above, no meaningful connections were found between having made hurricane preparations and perceived ease of evacuation, gender, time lived in Tampa, or concern about a hurricane coming to the area this season. Nor were subjects with previous hurricane experience, or even subjects who evacuated for the last hurricane they experienced, significantly more likely to have taken preparative measures against future hurricanes. However, students who had made hurricane preparations were significantly more likely to have an evacuation plan than those who had not made preparations (Chi-Square 5.971, df = 1, p = 0.015). Although some students listed the evacuation plan on their list of preparations, most did not. Non-traditional aged students were also more likely to have prepared for hurricanes. However, the older undergraduates were marginally *less* likely than their younger counterparts to have made any preparations.

Anticipated Destination and Means of Evacuation

Although only one-quarter of students had an evacuation plan in place at the time of the survey, all students were questioned on whether or not they would evacuate, where they would evacuate to, how they would get there, as well as how easy they thought it would be to evacuate. The vast majority (about four-fifths) of students did plan on evacuating if told to, though as demonstrated above, relatively few had evacuation plans.

As for *how* students would evacuate (asked even if they did not plan on evacuating when told) a significant gender difference was observed in the means of evacuation students planned to use, with females more likely to rely on their parents and families than male.

Students were also asked to rate their agreement (or disagreement) with the statement "I could evacuate quickly in the case of a mandatory evacuation order." Answers were dependent, in part, on the means of transportation they anticipated using. Eighty-one percent of students who said they would drive their own car agreed or strongly agreed that they would be able to evacuate quickly; this number dropped to sixty percent who said they would rely on friends, fifty-six percent for those who said they would rely on their parents and family, and fifty percent for those who said they would use public transport (albeit a very small sample). The destination of choice (family member's home, shelter, etc.) did not play a significant role (Chi-square 6.695, df = 8, p = 0.570) in the determining the students' confidence in their quickness of evacuation. Nor did gender, year of birth, and race/ethnicity impact their confidence in their ability to evacuate easily. No significant difference was observed between students' perceived quickness of evacuation and their self-assessed degree of preparation for this hurricane season (Chi-Square 1.913, df = 4, p = 0.752). In addition, no significant difference was observed between students' perceived ease of evacuation and their self-assessed degree of preparation for this hurricane season (Chi-Square 1.913, d f= 4, p = 0.752).

Students were also queried on whether or not they thought their residence could withstand a hurricane. Flowing from this was the hypothesis, "if students perceive their residences to be lacking in structural integrity, then they will be more likely to evacuate their residences." The survey results do not support the hypothesis, as there was no significant difference between students who were confident in their structures and not in how likely they would be to evacuate. (Chi-Square 3.041, df = 4, p = 0.551).

Workshop and Evaluation of USF

A major objective of this survey was to gain insights into how undergraduates perceived their university's ability to prepare them for disasters when they occur. Their answers from the survey dealing with different aspects of the university's preparedness actions were crossed against different demographic and perception factors captured by the survey and then scrutinized to unearth significant findings.

One focus within this survey was how undergraduates felt about the possibility of having to complete a USF-sponsored hurricane workshop educating them on hurricane preparations. If students perceived that their need was great enough to warrant such a course, then the team could recommend the creation of such a course to the university's administration. In order to determine the specifics for undergraduates' perception of their need for a USF-sponsored hurricane workshop, the data first had to be examined for generalizations amongst all undergraduate categories, and then specifically against controlling factors within the undergraduate population. Overall, fifty-one percent of undergrads agreed that a USF-sponsored hurricane workshop would be useful to them. No significant difference was found between gender and the need for a USF hurricane course (Chi-Square 1.793, df = 2, p = 0.408). However, differences existed between how undergraduates perceived the likelihood of a hurricane striking Tampa and their need for a hurricane workshop when the data were coded with multiple different categories (Chi-Square 13.150, df = 6, p = 0.041). Nevertheless, when the data were reworked to include only two categories, over- and under-perception of a hurricane strike, the results are not significant at the ninety-five percent level, but remain significant at the ninety percent level (Chi-Square 5.310, df = 2, p = 0.07). Out of undergraduates who under-perceived the likelihood of a hurricane hitting

Tampa this season, forty-one percent still said that they favored a course, as opposed to fifty-five percent of students who over-perceived a hurricane hitting Tampa favoring the course.

Undergraduate Concern

There was a significant difference between the level of undergraduate concern about hurricanes hitting Tampa and the need for a USF-sponsored hurricane course (Chi-Square 14.250, df = 4, p = 0.007). Of the eighty-eight respondents who stated that they were not really concerned or not concerned at all about a hurricane strike, thirty-seven and a half percent still agreed or strongly agreed that a hurricane workshop would be useful to them. A significant difference was also found in the respondents' support for a mandatory USF online workshop on hurricane preparedness and perception of the probability of a hurricane hitting Tampa (Chi-square 13.150, df = 6, p = 0.041). Those who estimated lower probabilities for a hurricane strike tended to have less support for such a program.

Housing and Time

There was no significant difference between support for a mandatory workshop and those who were either optimistic about their residence withstanding a hurricane and those who were not optimistic (Chi-Square 4.055, df = 4, p = 0.399). Additionally, it was found that the time undergraduates resided in Tampa did not have an effect on their perception of a USF-sponsored hurricane workshop (Chi-Square 94.651, df = 100, p = 0.632).

USF Information

There was no significant difference between receiving information from USF and perceiving a need for a USF hurricane workshop (Chi-Square = 0.569, df = 2, p = 0.753). There was also no significant difference between having an evacuation plan and perceiving a need for a hurricane workshop (Chi-Square = 0.800, df = 2, p = 0.670). Nor was there a significant difference observed between students who signed up for MoBull and who did not in their perception of a need for a hurricane workshop (Chi-Square = 1.614, df = 2, p = 0.446).

Chapter Six:
Conclusions and Recommendations

It is not a question of "if", but of "when" a hurricane will impact the Tampa Bay area, and it is essential that all of the different elements of the area's undergraduate population be equipped with proper education and information, so that individuals can make the best decisions about strategies for dealing with these storms. The conclusions in this chapter represent the current perceptions that undergraduates hold towards hurricanes, as well as the research team's recommendations for providing undergraduates with proper education on tropical systems.

Conclusions

- The city of Tampa is situated in a high hazard risk area; the community is exposed to hurricane activity, lies within the storm surge zones for low category events and has a highly vulnerable population.
- Undergraduates overestimate the likelihood of a hurricane or a tropical storm coming to Tampa in any given season, but do not show an equivalent level of concern for these systems. Undergraduates also tended to be fairly neutral when asked their perceived level of preparedness. It may be concluded that while undergraduates are aware of Tampa's vulnerability to hurricanes, they take it lightly.
- While many undergraduates have experienced a hurricane, most did not evacuate for the last one experienced, and the majority has not made any preparations this season.

Undergraduates may be under the belief that since they survived the last hurricane, they can survive again for the next system.

- A majority of students believe that USF has not done a good job providing them with information on hurricanes, and that USF has never given them any information on hurricanes. However, analysis of the data found that students in dormitories were more likely to state that USF has provided them with good information on hurricanes. Given that USF is moving toward becoming less of a commuter school by requiring all freshmen to live on campus, this is an encouraging sign that the university is being proactive in making sure that at least its on-campus students are informed about hurricanes.
- The research showed that students who have made preparations for hurricanes tend to be more confident in their ability to deal with hurricanes,

Recommendations

- USF should look further into the possibility of a hurricane workshop for undergraduates. With over half of the student body stating that a workshop of some sort on hurricanes would be useful to them, and the team finding that many students are misinformed on basic information about hurricanes, a workshop giving information on these disasters could be very useful to the undergraduate community.
- Students with pets need to receive more information on how to prepare for hurricanes. From our research, it is obvious that USF needs to better inform students about hurricanes and it is also clear that a large number of students own pets. Therefore, USF

should make sure to include important information on pets in hurricanes with the rest of their hurricane preparedness information.

- USF should make MoBull a requirement for all students on campus. When incoming freshmen register, their phone numbers should be input into a database and their phones automatically registered for MoBull. That way all students can have access to the same information and USF can distribute information in a timely manner.

Shooting at hurricanes (the title of this report) may be one family's response to the coming disaster, but it is hardly constructive. It is hoped, then, that such new education strategies and the wider use of innovative information outlets, described above, will enhance students' perception and awareness of hurricanes, and indeed of hazards in general. In turn, it is anticipated that such raised consciousness combined with education will lead to more positive and effective and responses to mitigate the impacts of disaster. However, further research is necessary, particularly studies that focus on transient groups like students, to model awareness and behavior attributes.

References

Cardona, O. D. (2004).The Need for Rethinking the Concepts of Vulnerability and Risk From a Holistic Perspective: A Necessary Review and Criticism for Risk Management. *Mapping Vulnerability: Disasters, Development, and People*, 37-51.

Carlino,S., Somma, R., and Mayberry, G. C. (2008). Volcanic risk perception of young people in the urban areas of Vesuvius: Comparisons with other volcanic areas and implications for emergency management. *Journal of Volcanology and Geothermal Research,* Volume 172, Issue 3-4**,** 229-243.

Chakraborty, J., Tobin, G.A, & Montz, B.E. (2005). Population Evacuation: Assessing Spatial Variability in Geo-Physical Risk and Social Vulnerability to Natural Hazards.. *Natural Hazards Review*, Volume 6, Issue 1, 23-33.

Cutter, S.L. (1996). Vulnerability to Environmental Hazards. *Progress in Human Geography*, *Volume 20, Issue 4*, 529-539.

Disaster Preparedness. (2009). Retrieved from Hillsborough County Government Official County Government Online Resource Web site: http://www.hillsboroughcounty.org/animalservices/information/disaster.cfm

Douglas, M. & A. Wildavsky. (1982). *Risk and Culture: An Essay on the Selection of Technical and Environmental Dangers*. Berkeley: University of California Press.

Gill, D., A. Ladd, G. Cross, V. Fee, J. Edwards, J. Marszalek, A. Kos, Edwards, D. McSeveney, and E. Wells-Parker. (2006). *Impacts of Hurricane Katrina on Mississippi State University Students.* Learning from Catastrophe: Quick Response Research in the Wake of Hurricane Katrina. 373-402.

Gill, D., Ladd, A. and Marszalek, J. (2007). College students' experiences with Hurricane Katrina: a comparison between students from Mississippi State University and three New Orleans universities. *Journal of the Mississippi Academy of Sciences*, Volume 52, Issue 4, 262-280.

Gutierrez, D., Hollister, D., and Beninato, A. (2005). Hurricane madness: Teaching, learning and the importance of flexibility in the wake of disaster. *The Valencia Forum*, Volume 1, Issue 1, (Online journal)

Hillsborough County, Florida [Fact sheet]. (n.d.). Retrieved from U.S. Census Bureau State & County Quickfacts Web site: http://quickfacts.census.gov/qfd/states/12/12057.html

Johnston, D., Becker, J., Gregg, C., Houghton, B., Paton, D., Leonard, G. and Garside, R. (2007). Developing Warning and Disaster Response Capacity in the Tourism Sector in Coastal Washington, USA. *Disaster Prevention & Management,* Volume 16, Issue 2, 210-216.

Kelman, I., R. Spence, J. Palmer, M. Petal, and K. Saito. (2008). Tourists and Disasters: Lessons From the 26 December 2004 Tsunamis. *Journal of Coastal Conservation,* Volume 12, Issue 1, 105-113.

Ladd, A., Marszalek, J. and Gill, D. (2006). The Other Diaspora: New Orleans Student Evacuation Impacts and Responses Surrounding Hurricane Katrina. *Annual Meetings of the Southern Sociological Society*. (Conference paper).

McGuire, J. (n.d.). College students find comfort in their pets during hard times. *The Ohio State University Research News*. Retrieved from http://researchnews.osu.edu/archive/petowner.htm

Meheux, Kirstie and Parker, E. (2004) Tourist sector perceptions of natural hazards in Vanuatu and the implications for a small island developing state. *Tourism Management,* Volume 27, Issue 1, 69-85.

Mulilis, J. (2000). Tornado Preparedness of Students, Nonstudent Renters, and Nonstudent Owners: Issues of PrE Theory. *Journal of Applied Social Psychology, Volume 30, Issue 6,* 1310-1329.

Mulilis, John Paul, T. Duval, and K. Bovalino. (2000). Tornado Preparedness of Students, Nonstudent Renters, and Nonstudent Owners: Issues of PrE Theory. *Journal of Applied Social Psychology,* Volume 30, Issue 6, 1310-1329.

Oliver-Smith, A. (1996).Anthropological Research on Hazards and Disasters. *Annual Review of Anthropology*, *Volume 25, Issue 1*, 303-328.

Oliver-Smith, A. and Hoffman, S. (2002). Why Anthropologists Should Study Disasters. *Catastrophe and Culture: The Anthropology of Disaster*. 3-22.

Sattler, David N., A. Preston, C. Kaiser, V. Olivera, J. Valdez, & S. Schlueter. (2002). Hurricane Georges: A Cross-National Study Examining Preparedness, Resource Loss, and Psychological Distress in the U.S. Virgin Islands, Puerto Rico, Dominican Republic, and the United States. *Journal of Traumatic Stress,* Volume 15, Issue 5*,* 339-350.

Searcy, L. (2009, May 22). Pets get abandoned as college semester ends. *WCTV*. Retrieved from http://www.wctv.tv/home/headlines/45866897.html

Stein, C., Vickio, C., Fogo, W. and Abraham, K. (2007). Making connections: a network approach to university disaster preparedness. *Journal of College Student Development*. *Volume 48, Issue 3,* 331-343.

Tobin, G. A. and Montz, Burrell E. (1997). *Natural Hazards: Explanation and Integration***.** New York, NY: Guilford Press.

U.S. pet ownership 2007 [Market Research Statistics]. (2007). Retrieved from American Veterinary Medical Association Reference Web site: http://www.avma.org/reference/marketstats/ownership.asp

USF International Homepage. (2008). Retrieved July 16, 2009, from USF Undergraduate Admissions at the University of South Florida Web site: http://usfweb2.usf.edu/Admissions/International/.

Van Willigen, M., Edwards, B., Lormand, S. and Wilson, K. (2005). Comparative assessment of impacts and recovery from Hurricane Floyd among student and community households. *Natural Hazards Review*, Volume 6, Issue 4, 180-190.

Wisner, B., Blaikie, P., Canon, T. and Davis, I. (2004). *At Risk: Natural Hazards, People's Vulnerability and Disasters*. New York: Routledge.

Wolfe, A. (1988).Environmental Risk and Anthropology. *Practicing Anthropology*, Volume 10, Issue 1.

Appendix A: Survey

Assessing Hurricane Perceptions and Preparedness
Among Florida Undergraduate Students, June-July 2009

Introductory Statement
Hello, my name is _____. I am conducting brief interviews for a research project as part of a class. Are you an undergraduate student? [If no: I'm sorry but you cannot be a participant. Have a nice day.] If yes: I would like to ask you some questions about your perceptions and plans regarding this year's hurricane season. The survey will only take about 10 minutes of your time. Your answers will be kept completely confidential and will only be used for statistical purposes. Would you like to participate? Do you have any questions?

If you have any questions or would like more information, please contact Dr. Margarethe Kusenbach (813- 974-2595) or Dr. Graham Tobin, at the University of South Florida (813-974-4932). Provide letter of information.

Name of USF Site: _____

Number of Questionnaire: _____
(your initials plus a 3-digit number)

A. PERCEPTIONS

These first few questions are about your knowledge and feelings regarding hurricanes.

A-1. As far as you know, on what dates does hurricane season begin and end?
_____

A-2. In your estimate, what is the percent chance of Tampa being hit by a hurricane this year?
_____

A-3. In your estimate, what is the percent chance of Tampa being hit by a tropical storm this year? _____

A-4. How concerned are you about a hurricane coming to your area in this season? (Read choices.)

Very concerned	
Somewhat concerned	
Neutral	
Not really concerned	
Not concerned at all	

A-5. How well prepared do you feel for this hurricane season? Are you … (read choices).

Very well prepared	
Well prepared	
Neutral	
Not well prepared	
Not prepared at all	

B. EXPERIENCES AND PREPAREDNESS

B-1. Has a hurricane ever come to an area in which you lived?

Yes	
No	

If no, go to B-4.

B-2. For the last hurricane, did you evacuate?

Yes	
No	

If no, go to B-4.

B-3. Where did you go? (Do not read choices. Record first place, if several.)

Family Member's Home	
Friend's Home	
Shelter	
Hotel/Motel	
Other (Explain)	

B-4. Do you currently have a plan for evacuation, if it were needed?

Yes	
No	

B-5. Do you know where the nearest public shelter is located?

Yes	
No	

B-6. If you are told to evacuate this year because of a hurricane, will you leave your home?

Yes	
No	
Don't know	

Qualifications: _____

B-7. If you evacuate this year, where will you go? (Do not read choices.)

Family Member's Home	
Friend's Home	
Shelter	
Hotel/Motel	
Other (Explain)	

B-8. If you evacuate this year, how will you travel to your destination? (Do not read choices.)

Own Car	
Ride with Friend	
Public Transportation	
Rely on Parent or Family	
Other (Explain)	

B-9. Have you made any preparations for hurricanes this year?

Yes	
No	

If no, go to B-11.

B-10. Name the three biggest preparations you have made for this hurricane season for yourself (and anyone else in the household)?

1. _____
2. _____
3. _____

B-11. If a hurricane watch or warning were issued for the area, how do you think you would find out?

Media	
USF Announcement	
Friend / Family	
Other (Explain)	

B-12. Are you aware of USF's free cell phone emergency notification system?

Yes	
No	

If no, go to B-14.

B-13. Have you signed up for the service?

Yes	
No	

B-14. Has USF explicitly provided you with any information related to hurricanes?

Yes	
No	

B-15. How would you rate your overall readiness for this hurricane season? Are you .. (read choices).

Very ready	
Somewhat ready	
Neutral	
Not quite ready	
Not ready at all	

On a scale of 1 to 5, with 1 being strongly disagree, 2 being somewhat disagree, 3 being neither agree or disagree, 4 being somewhat agree, and 5 being strongly agree, please respond to the following statements:

B-16. My current residence in Tampa is able to withstand a hurricane.
_____

B-17. USF has done a good job providing me with information on hurricane preparedness.
_____

B-18. I could evacuate quickly in case of a mandatory hurricane evacuation order.
_____

B-19. If it were offered, a mandatory USF online course on hurricane preparation would be useful._____

C. BACKGROUND AND DEMOGRAPHICS

To finish up, I would like to ask you a few questions about yourself.

C-1. Note gender of respondent (do not ask).

Male _____

Female _____

C-2. What year were you born?

_____

C-3. What do you consider your race or ethnicity? (Do not read choices.)

Black	
Hispanic	
Native American	
Pacific Islander	
White	
Other (please describe)	

C-4. Are you a ….

Regular USF student	
visiting student from Florida (e.g. HCC, high school)	
visiting from an area in US affected by Hurricanes	
visiting from other US state	
visiting from foreign country	
other (please describe)	

C-5. Are you a ….?

Freshman	
Sophomore	
Junior	
Senior	

C-6. What is your current major (and minor)? _____

C-7. Where is your primary home located?

City: _____
State: _____
Country: _____

C-8. How long have you lived in Tampa? (state in years or months)

_____

C-9. In which type of place do you live at the moment? (read choices)

Apartment	
Dorms (on campus)	
House	
Mobile Home	
Other	

C-10. Do you live (with) ….?

Alone	
Friends	
Partner/own family	
Parent(s)	
Other (dorm)	

C-11. How many people are there in your household?

_____

C-12. How would you describe your current health? (Read choices)

Very Good	
Good	
Average	
Bad	
Very Bad	

C-13. Do you have a disability?

Yes	
No	

If yes please explain: _____

C-14. Do you personally own a car that is with you in Tampa?

Yes	
No	

C-15. Does anyone else in your household own a car?

Yes	
No	

How many cars total? _____

C-16. Are there any pets in your household?

Yes	
No	

If no, go to C-19

If yes please describe: _____

C-17. Do you know where the nearest pet-friendly shelter is located?

Yes	
No	

C-18. What preparations, if any, have you made for your pets in case of a hurricane?_____

C-19. Please name all your sources of income during the last year.

Full-time job	
Part-time job(s)	
Student Loans	
Stipend, Fellowship	
Support by parent(s)	
Support by other family members (e.g. partner)	

C-20. **Last question**: Is there anything else you would like to tell me about your experiences with hurricanes, or about your preparations for hurricane season?

_____

_____

Thank you for your time.

Appendix B: Information Letter for Participants

Tampa, June 1, 2009

Dear undergraduate student,

thank you for agreeing to participate in this study.

This study is conducted by a team of professors and students at the University of South Florida (USF). Dr. Maggie Kusenbach and Dr. Graham Tobin are the principal investigators.

The title of our study is: **"Assessing Hurricane Perceptions and Preparedness Among Undergraduate Students in Florida"**

Our goal is to learn more about how undergraduate students in hurricane-prone areas perceive the risks associated with these storms and how students prepare for them. This knowledge is important because it can help public agencies in assisting students before, during, and after natural disasters.

Your participation in the study is **completely voluntary**. You can stop at any time. Participation does not involve any known risks.

We will not ask you for your full name. Any personal information you do provide will be kept **strictly confidential**, according to the laws that regulate university-based research. Your identity will be completely protected.

If you have any questions or comments regarding the study, or if would like to get a copy of our final report, please contact:

Maggie Kusenbach, Ph.D. or
University of South Florida
Department of Sociology
4202 E Fowler Avenue, CPR 107
Tampa, FL 33620
Phone: (813) 974 2595
Email: mkusenba@cas.usf.edu

Graham Tobin, Ph.D.
University of South Florida
Department of Geography
4202 E Fowler Avenue, NES 107
Tampa, FL 33620
Phone: (813) 974 4932
Email: gtobin@cas.usf.edu

Appendix C: IRB Approval

DIVISION OF RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 . Tampa, FL 33612-4799, (813) 974-5638 . FAX (813) 974-5618

June 16, 2009

RE: **Exempt Certification** for IRB#: 108046 I
Title: *Assessing Hurricane Perceptions and Preparedness Among Undergraduate Students in Florida*

Dear Dr. Kusenbach:

On June 12, 2009, the Institutional Review Board (IRB) determined that your research **meets USF requirements and Federal Exemption criteria two (2).** It is your responsibility to ensure that this research is conducted in a manner reported in your application and consistent with the ethical principles outlined in the Belmont Report and with USF IRB policies and procedures. Please note that changes to this protocol may disqualify it from exempt status. It is your responsibility to notify the IRB prior to implementing any changes.

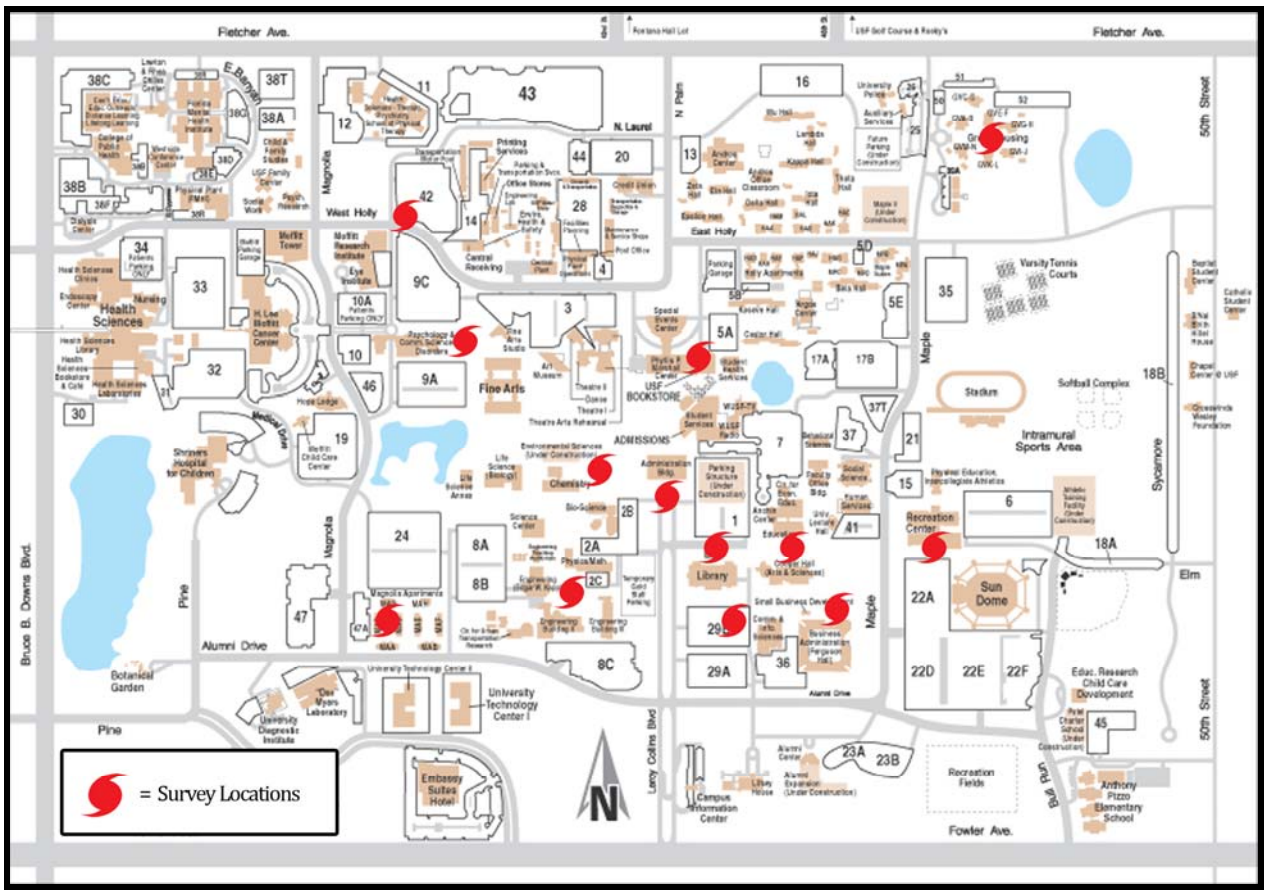
The Division of Research Integrity and Compliance will hold your exemption application for a period of five years from the date of this letter or for three years after a Final Progress Report is received. If you wish to continue this protocol beyond those periods, you will need to submit an Exemption Certification Request form at least 30 days before this exempt certification ends. If a Final Progress Report has not been received, the IRB will send you a reminder notice prior to end of the five year period; therefore, it is important that you keep your contact information current with the IRB Office. Should you complete this study prior to the end of the five-year period, you must submit a Final IRB Progress Report for review.

Please reference the above IRB protocol number in all correspondence regarding this protocol with the IRB or the Division of Research Integrity and Compliance. In addition, you can find the Institutional Review Board (IRB) Quick Reference Guide providing guidelines and resources to assist you in meeting your responsibilities in the conduction of human participant research on our website. Please read this guide carefully. It is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB.
We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-2036.

Sincerely,

Krista Kutash, Ph.D., Chairperson
USF Institutional Review Board

Appendix D: Map of Research Locations



Survey locations included the USF library, campus bookstore, newly built student center (Marshall Center), engineering quad, gym, mass communications building, business building, medical area, administration building, dorms, psychology building, fraternity and sorority housing area, and arts and sciences classroom building. (Figure taken from USF website).

Appendix E: Profile of USF Students

Diversity Profile of Undergraduate Students - USF, Summer 2009

	Undergraduates	
	# Enrolled	**% Enrolled**
Total	21,817	100.0%
African American	2,957	13.6%
Hispanic	3,062	14.0%
Asian	1,379	6.3%
American Indian	118	0.5%
White	13,701	62.8%
Not Reported	360	1.7%
Male	9,042	41.4%
Female	12,770	58.5%
Not Reported	5	0%