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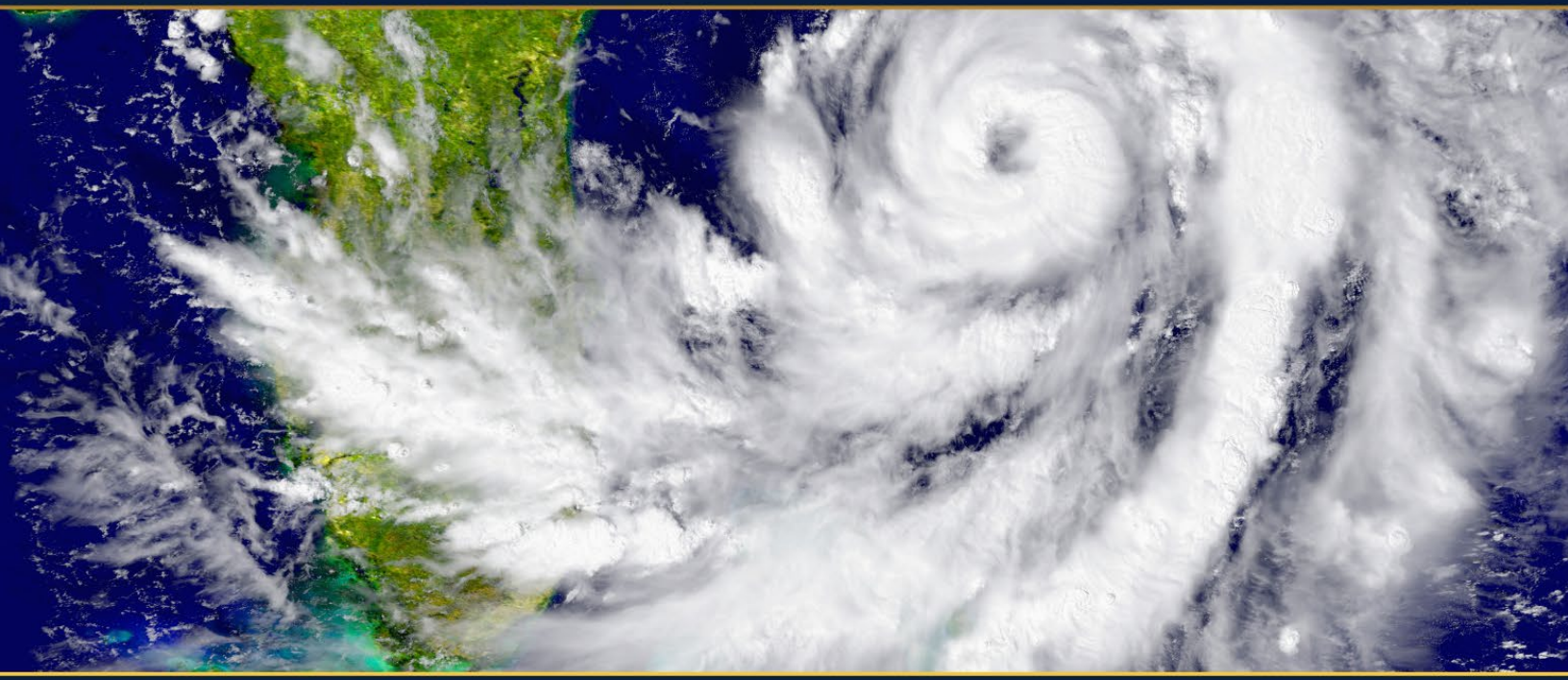
Jorge M. Pérez Metropolitan Center



2024

HURRICANE PREPAREDNESS AND MITIGATION POLL

Credits and Acknowledgements

About Florida International University Jorge M. Pérez Metropolitan Center

The Florida International University Jorge M. Pérez Metropolitan Center is an applied research institute that provides policy solutions to public, private, and non-profit organizations in South Florida. Our core areas are Economic and Housing Market Analysis and Survey and Opinion Research. The Jorge M. Pérez Metropolitan Center is part of the Steven J. Green School of International and Public Affairs.

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Table of Contents

Maps

Tables

List of Figures

Introduction

Tropical cyclones are hurricanes in the Atlantic Ocean, typhoons in the Pacific, or cyclones in the Indian Ocean. From 1980 to September 2024, there were 396 weather and climate disasters in the United States where damages exceeded $1 billion, for total damages over $2.78 trillion in 2024 CPI-adjusted USD. Of these, 63 were tropical cyclones (15.9% of all disaster types), resulting in $1,421.6 billion in 2024 CPI-adjusted dollars in total costs and 154 deaths per year.[1] During this period, there were 90 weather disaster events in Florida with damages of up to $400 billion. Of these, 32 were tropical cycles or 35.6 percent of all weather disasters in the state. Despite being slightly over one-third of disasters in Florida since 1980, tropical cyclones totaled up to $370 billion in damages, or 92.5 percent of total costs.[2] These include many storms that made direct landfall in Florida, such as Hurricane Idalia (2023), Hurricane Ian (2021), Hurricane Michael (2018), Hurricane Irma (2017), Hurricane Charley (2004), and Hurricane Andrew (1992).[3]

Hurricane Andrew was a Category 5 hurricane that made landfall in the Southern part of Miami-Dade County on August 24, 1992, with sustained wind speeds reaching up to 165 mph.[4] The storm resulted in fifteen direct deaths and 28 indirect deaths in South Florida as well as $26 billion in damages. Forty-nine thousand homes were destroyed in Dade County, and 108,000 additional homes were damaged. According to the Insurance Information Institute, approximately 250,000 residents of Miami-Dade County were left homeless because of the hurricane.[5] According to NOAA and based on the storm's central pressure, Hurricane Andrew is considered one of the top five most powerful hurricanes to make landfall in the U.S. as of September 2024.[6]

The hurricane served as a wake-up call for the state, reminding Floridians of their vulnerability to hurricanes. Hurricane Andrew became a catalyst for change in Florida in different areas, including the building code, hurricane forecasting, emergency management's response to natural disasters, and the focus on hurricane mitigation. Furthermore, according to FIU's Associate Director of the International Hurricane Research Center, Erik Salna, Hurricane Andrew "changed Florida for the better…We became the leader in emergency management, hurricane research, and mitigation, and we are an example to the rest of the country."[7] The hurricane resulted in the overhaul of the building codes in Florida. For starters, hurricane straps were added to new constructions to reinforce the roof's connection to houses. Other measures include the introduction of impact windows. The resulting code, the Florida Building Code (FBC), was adopted statewide in 2002. It includes more robust standards like the adoption of the American Society of Civil Engineers Standard ASCE 7-98, so buildings are required to withstand wind forces of varying speeds depending on their location within Florida. It also establishes guidelines for Miami-Dade and

[1] As of October 17, 2024, the NOAA site has not added information on hurricanes Helene or Milton that made landfall in Florida in September and October 2024.
[2] "Hurricane Costs." NOAA Office for Coastal Management. Accessed November 16, 2023. https://coast.noaa.gov/states/fast-facts/hurricane-costs.html.
[3] "Billion-Dollar Weather and Climate Disasters." Billion-Dollar Weather and Climate Disasters | National Centers for Environmental Information (NCEI). Accessed November 16, 2023. https://www.ncei.noaa.gov/access/billions/events/FL/1980-2023?disasters%5B%5D=all-disasters; "US Hurricane Landfalls." Atlantic Oceanographic and Meteorological Laboratories. Accessed October 17, 2024. https://www.aoml.noaa.gov/hrd/hurdat/All_U.S._Hurricanes.html
[4] US Department of Commerce, NOAA. "Andrew." National Weather Service, August 27, 2022. https://www.weather.gov/mfl/andrew
[5] Feito, Melissa. "Hurricane Andrew Changed Preparedness Forever." WUSF, October 2, 2024. https://www.wusf.org/weather/2022-08-30/hurricane-andrew-changed-preparedness-forever.
[6] ABC News. Accessed October 17, 2024. https://abcnews.go.com/US/strongest-hurricanes-hit-us-mainland-tropical-cyclone-records/story?id=65277296
[7] Feito, Melissa. "Hurricane Andrew Changed Preparedness Forever." WUSF, October 2, 2024. https://www.wusf.org/weather/2022-08-30/hurricane-andrew-changed-preparedness-forever.

Broward counties, as they are designated as High-Velocity Hurricane Zones.[8] Other changes that mitigate the effects of hurricanes include technological advancements in hurricane forecasting and increased coordination between different levels of government and the private sector in response to natural disasters. Finally, since Hurricane Andrew, Florida has had "a larger focus on mitigation and preparedness efforts to minimize the impact of future storms impacting the state."[9]

In addition to changing the building code, Hurricane Andrew and subsequent storms highlighted for Florida residents and policymakers a need to extend their understanding of hurricane mitigation beyond physically mitigating damages through the building code and improved government response to a disaster, to obtain an accurate understanding of how prepared the public is to weather the next storm. As a result of this increased focus on mitigation efforts, since 2006, the Jorge M. Perez Metropolitan Center has provided the Florida Legislature with a greater understanding of how prepared Floridians feel they are for the next major hurricane with our annual survey of Florida's coastal counties, the Annual Hurricane Preparedness and Mitigation Poll. In the last few years, around 800 respondents across 61 of Florida's 67 counties have been surveyed annually through a telephone survey conducted during evening and weekend hours at the start of the Atlantic hurricane season. These coastal counties have a combined population of over 20 million people. The survey focuses on the more densely populated counties.

[8] The Florida Building Code. Accessed October 2, 2024. https://www.floridabuilding.org/fbc/publications/fbc.pdf.

[9] "Florida Division of Emergency Management Commemorates 30th Anniversary of Hurricane Andrew, Highlights Lessons Learned to Further the Field of Emergency Management." FloridaDisaster.org. Accessed October 2, 2024. https://www.floridadisaster.org/news-media/news/20220823-florida-division-of-emergency-management-commemorates-30th-anniversary-of-hurricane-andrew-highlights-lessons-learned-to-further-the-field-of-emergency-management/

Methodology

Surveys were conducted via telephone during the evening and weekend hours. Callers read the survey questions to respondents and recorded their responses. For most questions, they were instructed not to read the 'don't know' option, but had it available in case the respondent provided that answer. Responses were confidential, and the JPMC prioritized the privacy of respondents by utilizing the aggregate results of survey responses, ensuring any identifiers had been removed from the reporting of data. Additionally, surveys were conducted only among the adult population. Although the survey consists primarily of closed-ended questions, some questions are specifically open-ended, and others allow for the 'other' option to write in responses. Content analysis of open-ended responses enables the grouping of individual responses into categories. This condensation allows for numerous responses to be interpreted into meaningful themes. If open-ended responses provided by selecting the 'other' option were similar or the same as those of a specified category from among the list of existing options, these totals were recalculated to include toward the count of those responses, and the 'other' response was removed from the calculation of total 'other' responses. For questions where respondents could select more than one response, if respondents selected an existing option and the 'other' option to specify, for instance, what supplies they would buy or where they would evacuate to, these responses remained intact, and their open-ended responses were categorized. If respondents provided a list of fill-in responses and one of the previously presented options was included in the list, these were not recoded as that option. For instance, for the hurricane preparation question, if a respondent listed that they would prepare their home by putting up tapes, using a generator, and buying basic items, this response stayed as other and was not recoded as buy supplies. In cases where respondents could select only one option and selected one of the main options but also provided a fill-in response that was not the same as that option, these were counted towards the number of fill-in responses but not the count of others. For instance, if 15 respondents selected 'other', but two respondents selected one of the non-other options and provided a response in the fill-in response for 'other', this would be described as 15 respondents selected the 'other' option, and 17 fill-in responses were provided. Additionally, if respondents provided 'other' responses that fell into different categories, these were counted as separate responses and counted towards each category. If a respondent provided a contradictory response, it was removed from the count of responses. For example, a response that indicated a selection of the increase property taxes option and then in the open-ended line for that question stated, 'do not increase taxes' would be removed from the total for that question.

The following is an analysis based on frequencies or counts and percentages of responses given during the telephone survey. Percentages are based on the total number of responses to each question. For questions involving numerical ranges, percentages have been calculated based on the responses of those who knew how to respond. These questions include age, age of housing stock, estimated damages from a hurricane in dollars, and income. Although most questions only allowed respondents to select one answer, several accepted multiple responses. This includes the following: upgrade modifications to the property; previous hurricane experience for respondent or any adults in the household by storm category, name or year of previous storm by category; primary causes of hurricane-related damages to home; how households would prepare for a serious hurricane; top three sources of information; factors impacting the ability to prepare for a hurricane/storm; actions taken as a result of increased insurance costs; what level of government should reimburse residents in the event of a major hurricane; where respondents would consider selling their home; and the three most important characteristics when purchasing their home.

The survey also utilized skip logic, so certain questions were displayed depending on answers from previous questions. Skip logic occurred, for instance, in the question of the year their home was built. Only if they stated

their home was built before 1995, respondents were asked if they had made any upgrades or modifications to the property. For another question, if respondents indicated that they had experienced a previous tropical storm or hurricane, they were asked if they or any of the adults in their household had lived in a home physically damaged by a hurricane. If they indicated 'yes', they were then asked to specify the estimated damages in dollars, and what were the primary causes of damage to the home.

Other instances of skip logic include if respondents indicated they had a plan in the event of a serious hurricane by selecting one option from among the different methods of preparing their home for a storm (i.e. they did not select the 'I would not make any preparations' option), they were then asked to specify when they would begin to prepare their home for a hurricane. In another question, respondents who indicated they lived in a flood and/or evacuation zone were asked to specify the letter designation for the flood and/or evacuation zone.

A series of questions was asked of homeowners and not renters. This includes questions regarding:

- the total dollar amount of their homeowners' insurance policy deductible,
- their confidence in coming up with the sum of the policy deductible for unexpected hurricane damage,
- how their insurance rates have changed in the last year, 1 to 3 years, 3 to 5 years, and 5 to 10 years,
- the actions taken because of insurance increases (if they indicated their insurance increased somewhat or significantly in the question above for any of the past few years),
- the lowest replacement value for which they are comfortable insuring their home (if they indicated their insurance increased somewhat or significantly for any of the past few years),
- options they would consider if insurance and homeownership costs were to continue increasing at the current rate or higher (if they indicated their insurance increased somewhat or significantly for any of the past few years),
- if they would consider dropping their insurance if their mortgage were paid off,
- and the top three characteristics that were most important when purchasing their home.

Respondents were asked about sea level rise. Those who indicated that they believe sea level rise is happening in Florida were asked the following:

- if they also indicated they will be affected by sea level rise, if they would consider selling their home in the private market, as part of a government buyout program or neither,
- how the government should fund those initiatives

Changes to the 2024 Questionnaire

In addition to capturing demographic information of respondents, the Annual Hurricane Preparedness and Mitigation Poll covers topics like awareness and experience, the insurance market, risk reduction, evacuations, and government measures for loss mitigation. In some years, the poll has been updated to account for different situations experienced by Floridians, including the COVID-19 pandemic from 2020 to 2022. In the 2024 questionnaire, certain questions were removed from the survey including:

- Has the state of the current economy impacted your hurricane preparedness in any way?
- What should the government be doing to combat sea level rise?
- What is your current political affiliation

New questions include:

- If you could insure your property for less than its replacement value, what is the lowest range of replacement value for which you are comfortable insuring?
    - Respondent choices include: 100%, 80% to <100%, 60% to <80%, <60%, and don't know (DON'T READ).
- Which of the following would you consider taking if insurance costs and homeownership costs were to continue increasing at the current rate or higher?
    - Respondent choices include: 'moving to another home within the same county', 'moving to another county within Florida', 'moving to another state', and 'I would not move from my home'.

Other questions or their answer choices were modified including:

- The hurricane preparation question was modified from a yes or no dichotomous question on whether respondents would prepare to
    - If a serious hurricane threatened your home, how would you prepare? *[MARK ALL THE RESPONSES MENTIONED. DO NOT READ OPTIONS]*
    - Respondents were given options including 'putting up hurricane shutters/board up home', 'buy supplies and equipment', 'evacuate', 'call the insurance company', 'drive to the home of a relative/friend in other area', 'I would not make any preparations/my home is already prepared', and 'other'.
- When hurricane preparedness would occur was moved up to right after the hurricane preparedness question and displayed to all of those who did not select they would not make any preparations. One answer choice was removed
    - 'You won't make any special preparations to your home'
- The information sources question was changed from a ranking to a selection of the top choices with the following prompt,
    - Please select your top three sources of information.
    - Respondents were given these options: 'Internet sources other than social media', 'radio', 'TV', 'newspapers/print media', 'friends and family', 'social media (Twitter, Facebook, Instagram, TikTok, YouTube)', 'WhatsApp', and 'other'.
- The economic conditions question was rephrased for simplicity but retained the same answer choices. The new question is,
    - Have any of these factors impacted your ability to prepare for a hurricane/storm?

- The government actions on sea level rise question was rephrased for simplicity but retained the same answer choices. The new question is,
    - If the government were to take action on sea level rise, how should they fund those initiatives?
- The following questions had answer choices rephrased with the addition of < before the different ranges to create mutually exclusive categories:
    - How long do you plan on living in your current address?
    - Please tell me which is the income range for your household.

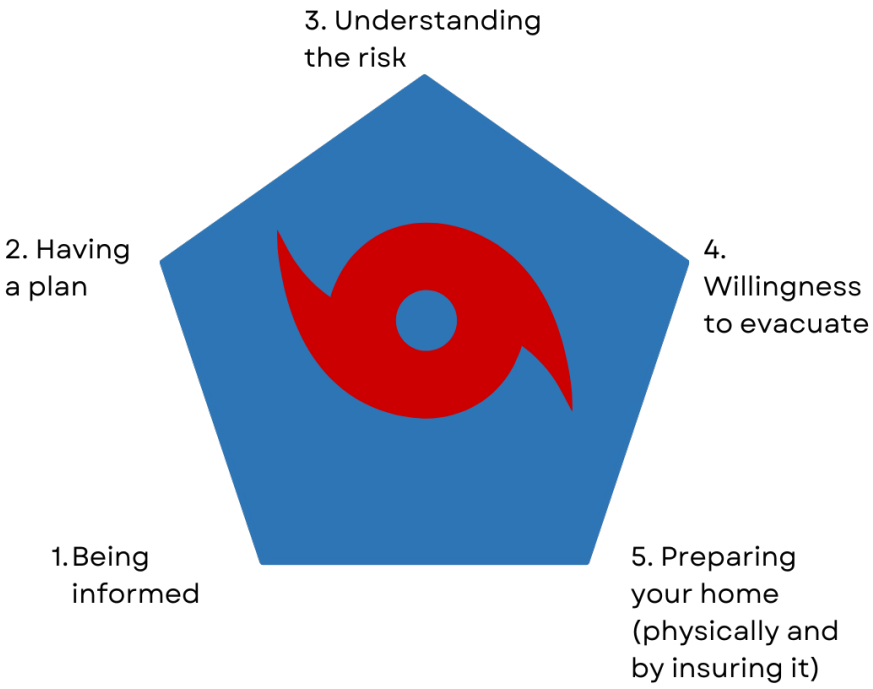
In addition to these changes, the wording of certain questions in the Spanish instrument was changed to allow for greater understanding among Spanish speakers of different nationalities and to more accurately reflect the English questionnaire. Despite these few changes, the majority of the survey's questions have remained intact to allow for time-based comparisons.

Understanding Hurricane Preparedness

As the goal of our survey is to understand the level of hurricane preparedness of Floridians in coastal areas, it is essential to establish a model for the different components of hurricane preparedness and mitigation by Florida residents and their families. Hurricane preparedness can be viewed as the ability of individuals, households, and even larger units of analysis to "respond effectively and recover more quickly when disasters strike."[10] Disaster preparedness begins at home and involves actions taken "to improve life safety, property protection, and survival from hazardous events."[11] These include knowledge of the potential hazards, life safety, property protection (set of supplies), mitigation actions, and having a plan.[12] We view preparedness as a combination of five factors: being informed, having a plan, understanding the risk, a willingness to evacuate if necessary, and preparing their home both physically and by having homeowners' insurance (this is only for homeowners and not all those surveyed). Like the five sides of a pentagon, all these factors are essential to understanding hurricane preparedness.

Our model is based on the results of previous years of hurricane survey data analysis, an analysis of journal articles on hurricane preparedness, and information provided by government sources including the National Weather Service. The National Weather Service created checklists that should be followed before hurricane season. These include and are listed with our categorizations from our model in parenthesis: things to know about where to get hurricane info (being informed), things to know about hurricane hazard risks (understanding the risk), things to know about an evacuation plan (willingness to evacuate), things to know about strengthening your home (preparing your home) and things to know about updating your insurance (preparing your home). Each checklist contains five components.[13]

Figure 1: 5 Components of Hurricane Preparedness



[10] Sutton, Jeannette, and Kathleen Tierney. 2006 "Disaster Preparedness: Concepts, Guidance, and Research." In Assessing Disaster Preparedness Conference, Sebastopol, California, November 3 and 4, 2006, pp. 3. Boulder: University of Colorado, Natural Hazards Center. https://dpnet.org.np/public/uploads/files/Disaster%20Preparedness%20Concepts_Jurnal%202021-09-29%2008-36-00.pdf

[11] Ibid, pp.13.

[12] Ibid.

[13] US Department of Commerce, NOAA. "What to Do before the Tropical Storm or Hurricane." National Weather Service, October 2, 2024. https://www.weather.gov/safety/hurricane-plan.

2024 Annual Preparedness and Mitigation Poll Demographics*

The annual study surveyed people from 61 of Florida's 67 counties. There were 802 total responses.

Age and Gender

Respondents are female

Respondents are 65 or older

Housing

Respondents are homeowners

58.6% of housing units were built before 1995

Race and Ethnicity

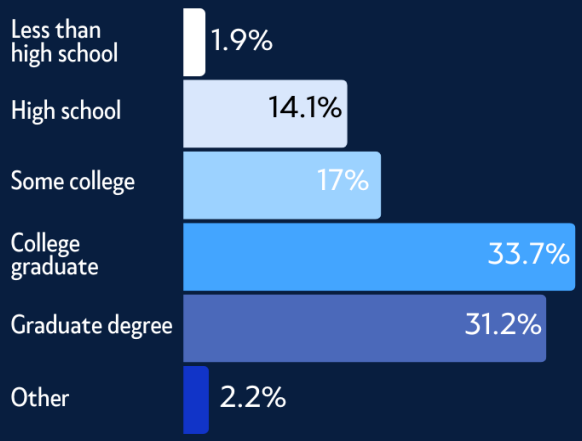
Respondents are Hispanic

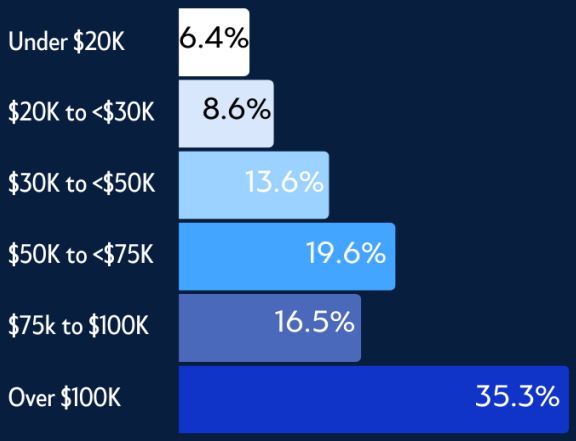
Respondents are White**

Hurricane Experience

Only 16% never experienced a hurricane or tropical storm.

Education and Income





*For certain questions, these figures exclude respondents who refused to answer, did not know, or provided contradictory responses.

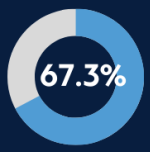
**May include White Hispanic respondents.

2024 Annual Preparedness and Mitigation Poll Findings*

The annual study surveyed people from 61 of Florida's 67 counties. There were 802 total responses.

Access to Information

Of respondents who lived in a home physically damaged by a hurricane, had damages of $50,000 or more

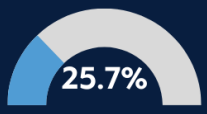


Were very certain they had all the info needed to protect themselves/their homes from hurricane damage

Home Preparation

On a scale of 1 to 5 with 1 being the least prepared to 5 being the most prepared...

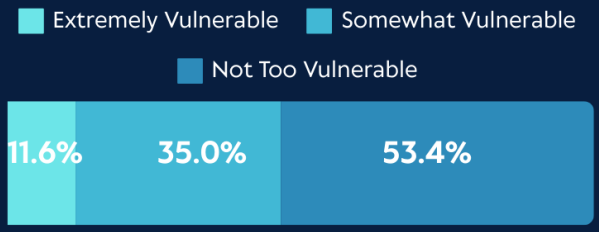
4 out of 5 average rating of household preparedness



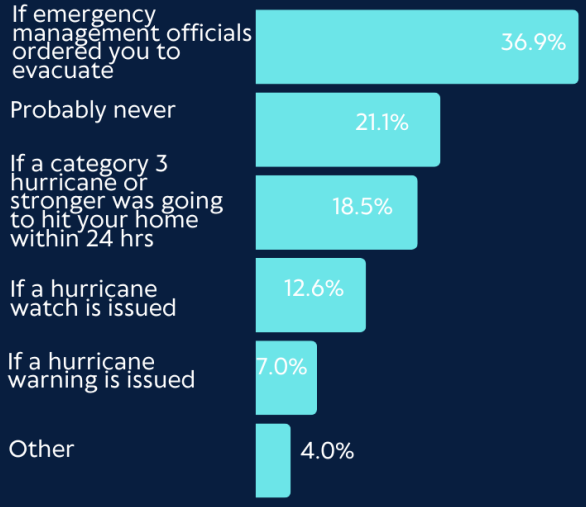
25.7% stated the cost of insurance has impacted their ability to prepare for a hurricane/storm**

Understanding the Risk

How vulnerable do you feel to damage from a hurricane, related tornado or flooding hazards?

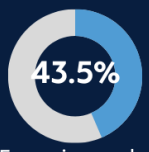


Evacuation

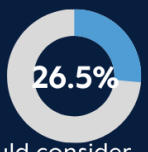


Homeowners' Insurance

Of 720 homeowners surveyed...

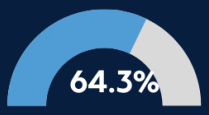


Experienced a sigifnicant increase of 10% or higher in their insurance rate in the last year



Would consider dropping their insurance if their mortgage was paid off

Sea Level Rise



Believe sea level rise is occurring

Of the 515 who believe sea level rise is occurring...

41.0% would support property, income, or both types of tax increases to fund those initiatives

*For certain questions, these figures exclude respondents who refused to answer, did not know, or provided contradictory responses.

**Percentages on certain questions when summed may exceed 100 as respondents could select more than one option.

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Respondent Profile

In 2024, 802 respondents from across the coastal counties in Florida completed the survey. In terms of language, nine in ten surveys were conducted in English (91.0%) while only 72 surveys were conducted in Spanish (9.0%). In terms of geographic distribution, given how responses are concentrated in the most populous areas, it is not surprising that three in ten 2024 responses came from South Florida residents (32.5%). The top counties by number of responses are Miami-Dade (11.6%), Broward (10.6%), Palm Beach (10.3%), Hillsborough (8.2%), Pinellas (5.4%), and Duval (5.4%).

Map 1: 2024 Respondents by County

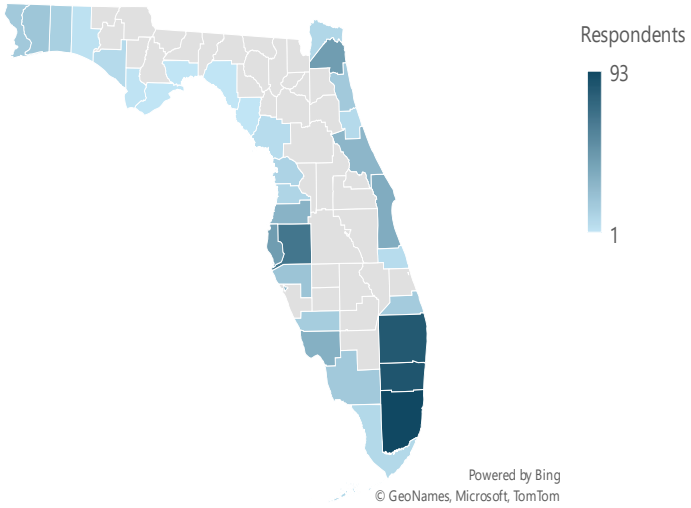
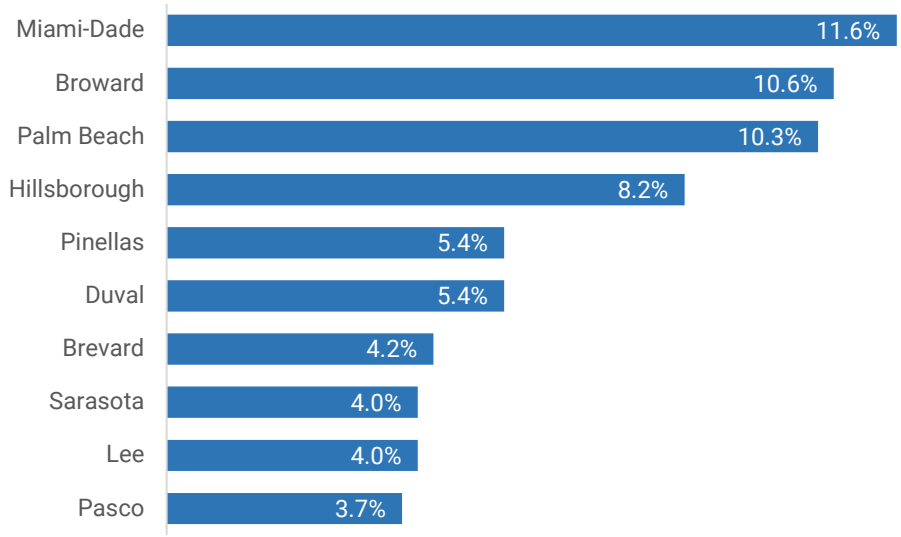


Figure 2: 2024 Respondents for Top 10 Counties by Total Number of Responses



Many of the 802 respondents were female (50.1%), 49.4 percent were male, and 4 selected the 'other' option. The fill-in responses include human, prefer not to say, do not identify, and non-binary.

In terms of age, 786 of 802 respondents provided their age range. Sixteen did not provide a response. Of these 786, many were 65 or older (49.1%), followed by 35-54 (23.2%), 55-64 (21.5%) and 18-34 (6.2%).

All respondents (802) indicated how many people, including themselves, live in their household. About one in four lived alone (25.1%) while four in ten lived with one other person (41.6%).

- All respondents specified if they had any children under 12 years old living in their home. Most did not (86.2%), while 7.0 percent had one child in that age range, followed by 5.4 percent who had two children in that age range and 1.5 percent who had three or more children in that age range living in their home.
- All respondents specified if they had any members of their homes ages 65 or older including themselves. Many did not (36.9%), followed by those with one elderly person in the home (35.2%), two elderly people in the home (25.9%), and three or more elderly people in the home (2.0%).

All respondents specified their marital status. Many were married or living with a partner (52.9%), followed by single/never married (17.5%), widowed (14.3%), divorced (12.7%), separated (1.2%), and 'other' (1.4%). The eleven 'other' responses include: prefer not to answer or general commentary about privacy (6), do not know or no answer (4), and all (1).

All respondents specified the highest level of educational attainment of any adult member of their household. Many were college graduates (33.7%) followed by those with a graduate degree (31.2%). Eighteen selected the 'other' option. These include do not know or prefer not to answer (8); technical and vocational school (6); commentary including a mention of attending school and listing university but not if graduated or how long attended (3); and none of those (1).

Eight hundred and one specified if they were of Hispanic/Latino origin. Most were not (78.9%), and 21.1 percent were.

Figure 3: 2024 Respondents by Number of People Living in Household

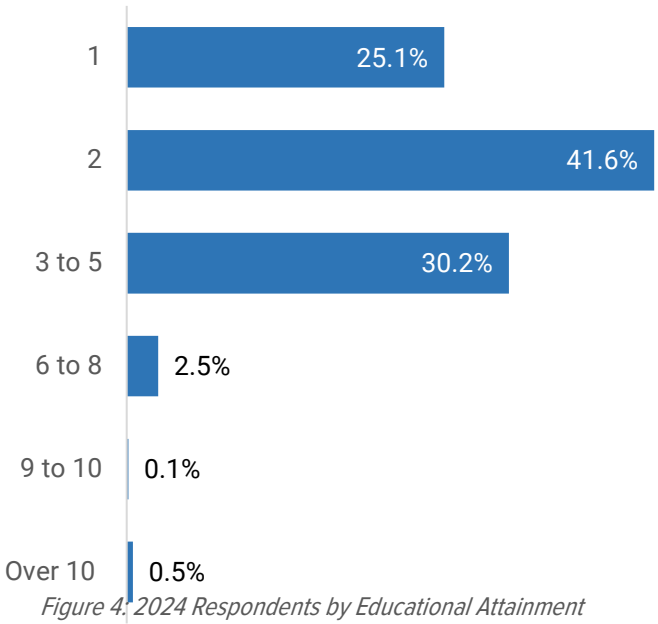
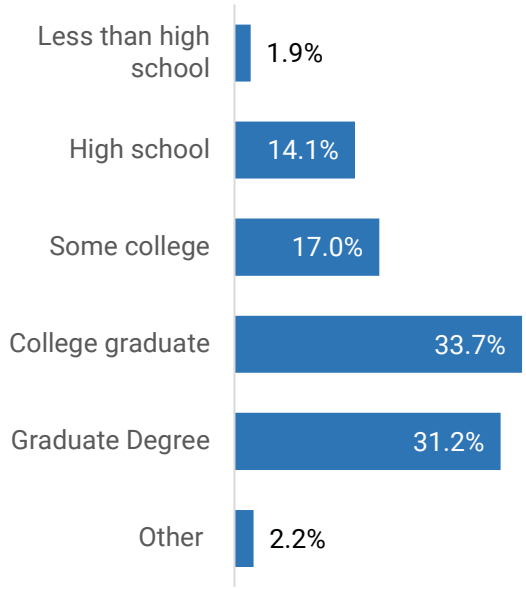


Figure 4: 2024 Respondents by Educational Attainment



Eight hundred and one respondents specified their race. Of these, most were White/Caucasian (75.0%), while 7.5 percent were Black/African American. As Hispanic ethnicity was asked separately, these categories include Hispanic respondents. One hundred and seventeen selected the 'other' option (14.6%). These responses include: Hispanic including Cuban, Latino, Puerto Rican, and Spanish (61); no, don't know, no response, or prefer not to answer (25); other groups including European, Caribbean, and Middle Eastern (14); biracial including biracial, Black and Asian, Caucasian and Native American, and Black and Irish (9); all races, human, or American (7); and Native Hawaiian (1).

All respondents specified what language is most spoken in their homes. Most primarily spoke English at home (85.5%), while 10.7 percent primarily spoke Spanish and 3.7 percent selected 'other'. Thirty respondents selected the 'other' option and provided 32 fill-in responses, as two respondents who selected English also provided another language. Fill-in choices include both English and Spanish (8); Western European languages like French, German, Greek and Italian (7); Creole (4); don't know or refuse to answer (4); East Asian languages like Chinese, Vietnamese, and a general mention of Asian (3); Arabic including both Arabic and English (2); Eastern European languages like Russian and Ukrainian (2); multiple languages (1); and Tigrinya (1).

All respondents were asked about their household income range. Some did not know or preferred not to specify their income (148) despite callers being instructed to not read that option. Of the 654 who specified an income range, many made over $100,000 (35.3%) followed by $50,000 to less than $75,000 (19.6%).

Figure 5: 2024 Respondents by Race

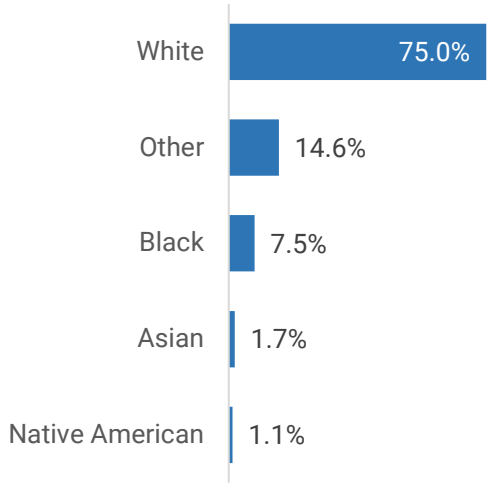
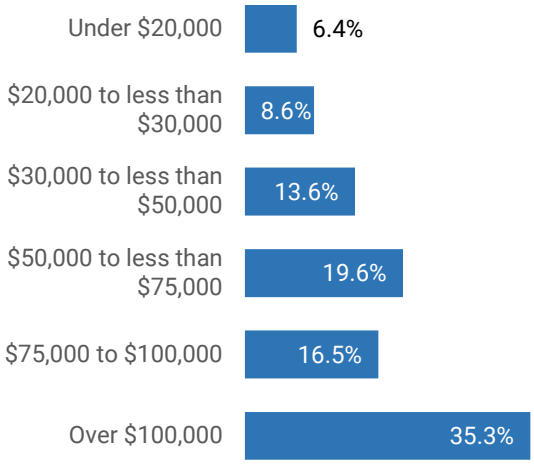


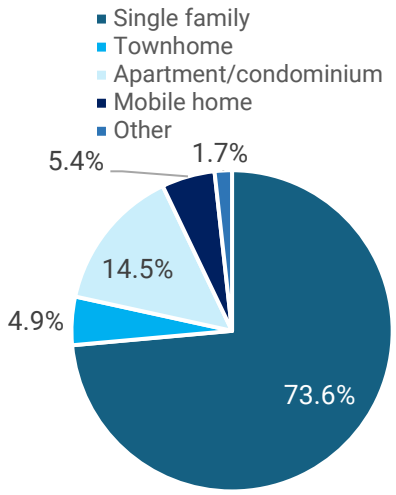
Figure 6: 2024 Respondents by Household Income



Housing Characteristics

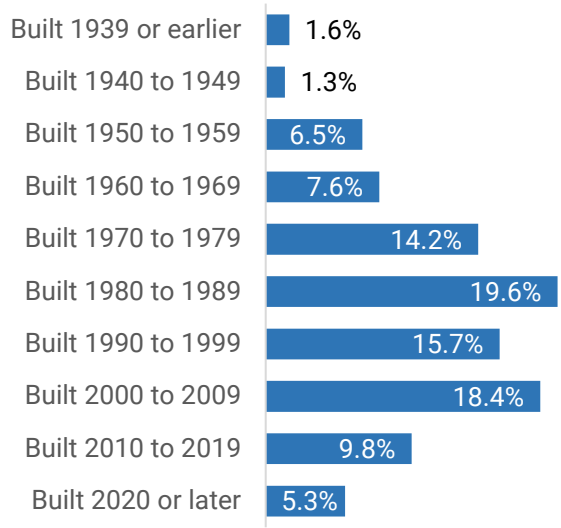
All 802 respondents specified the housing type of their home. Most lived in a single-family detached home (73.6%), followed by apartment/condominium (14.5%), and mobile or manufactured home (5.4%). Fourteen respondents provided a fill-in or 'other' option. These include the following responses: do not own home, share a home, rent a room, or multi-family (5); duplex, joint home or twin home (4); villa (2); block home (1); by the beach (1); and do not know (1).

Figure 7:2024 Respondents by Housing Type



All respondents indicated if they owned or rented their home. Most were homeowners (89.8% or 720) while one in ten were renters (10.2% or 82).

Figure 8: 2024 Respondents by Year Home was Built



All respondents were asked when their home was built. One hundred and seven did not know the age of their home. Six hundred and ninety-five respondents knew when their home was built. Of these 695, many stated their home was built between 1980 and 1989 (19.6%) followed by 2000 to 2009 (18.4%). More than half stated their home was built before 1995 (407 or 58.6%).

All 407 respondents whose home was built before 1995 were asked if any upgrade modifications had been made to the home. Respondents could select more than one option and as such percentages exceed 100. Additionally, respondents who selected the 'no upgrades made' option could not also select from among the options of upgrades to the property. Most indicated upgrades to their roofs (65.6%), followed by impact windows (43.7%). Sixty-six respondents selected the 'other' option and provided 74 responses as some indicated more than one upgrade. These include all or general mentions of upgrades or rebuilding home (11); electrical and plumbing upgrades like water pipes, irrigation, electrical, and septic tank (9); exterior upgrades like porch, pool, siding and patio (8); air conditioning, water heater, HVAC or insulation (7); bathroom upgrades (6); hurricane shutters and general window upgrades (6); other upgrades like wood installation, generator, sinkhole, and ceiling fan (6); the addition of rooms except bathroom (5); kitchen upgrades (4); doors including hurricane doors (4); painting (4); unclear or miscellaneous response (2); and do not know (2).

All respondents specified how many years they had been permanent residents of Florida. Many had been residents for thirty years or more (48.6%).

All respondents also indicated how long they planned on living at their current address. Most stated they planned to reside there for over 20 years (50.7%), followed by between 10 and less than 20 years (16.0%), between 5 and less than 10 years (13.3%), between 3 to less than 5 years (8.2%), between 1 to less than 3 years (6.0%) and less than one year (5.7%).

Figure 9: 2024 Respondents by Upgrade Modifications to their Property

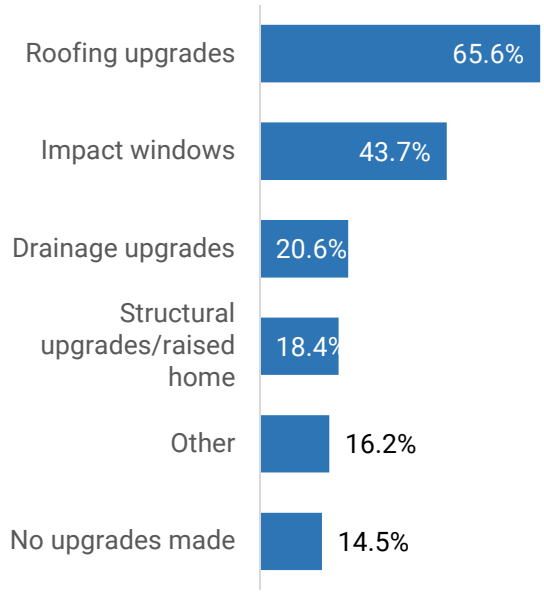
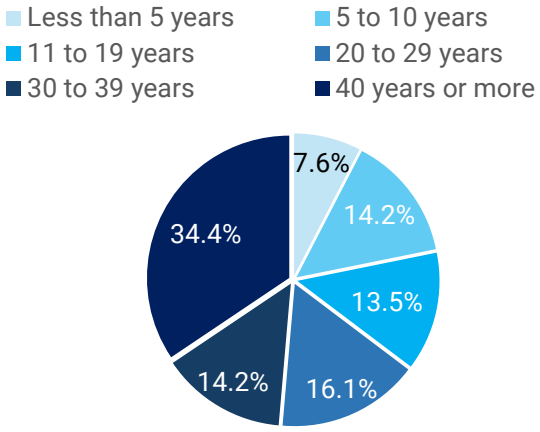


Figure 10: 2024 Respondents by Years of Florida Residency



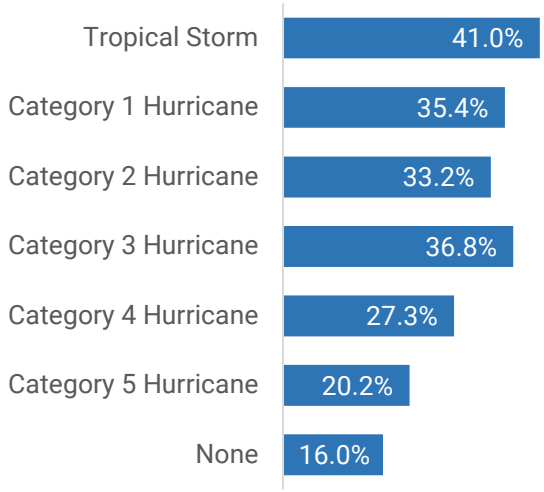
Factor 1: Access to Information

The questionnaire includes questions on previous hurricane experience, as that often guides an understanding of how to prepare for hurricanes. For many, this includes experience with resulting damage and the associated costs. Respondents were asked about these topics, as well as their evaluation of the certainty of having the needed information to protect themselves and their homes from hurricane damage, and a list of information sources.

In line with the study conducted by Rowena Kirby-Straker and Leslie Straker at Wake Forest University, hurricane preparedness is influenced by prior experience with natural disasters. The researchers conducted an online survey of 312 residents in North Carolina within one year of Tropical Storm Eta, which resulted in severe flooding in the area in November 2020. Their findings pointed to the notion that "experiencing material or personal loss during a disaster had a very strong direct positive influence on preparedness actions."[14]

All 802 respondents specified whether they or any of the adults in their household had ever experienced a tropical storm or hurricane by category. Percentages exceed 100 as respondents could indicate multiple storm categories. Additionally, if respondents selected not experiencing a storm, they could not select from among the other options. Although callers were instructed not to mention the 'none of the above' option, sixteen percent had no hurricane or tropical storm experience (128 respondents), while 674 had experienced some form of tropical cyclone. Four in ten had experienced a tropical storm (41.0% of 802 respondents) followed by a category 3 hurricane (36.8%).

Figure 11: 2024 Respondents by Previous Storm Experience and Storm Category



Respondents who indicated past hurricane experience were asked to list the name and or year of storms experienced by the category of the storm. If respondents listed the year and name of a storm, this was only counted toward the name category for the storm. Also, responses are included even if the named storm is not in the correct storm category. For instance, some respondents identified Hurricane Andrew as a tropical storm as that may be how they remembered it even though it is generally classified as a category 5 hurricane. This information is presented as word clouds on the following page for categories 4 and 5 hurricanes with counts of categories. In the word cloud the size of a word varies by its category's frequency. Word clouds are not displayed for tropical storms, and categories 1 to 3 hurricanes as many respondents stated they could not remember or did not know the names and/or years of those storms.

[14] Kirby-Straker, Rowena, and Leslie Straker. "The Effect of Experiencing Disaster Losses on Risk Perceptions and Preparedness Behaviors." Natural Hazards Center. Accessed October 08, 2024. https://hazards.colorado.edu/weather-ready-research/the-effect-of-experiencing-disaster-losses-on-risk-perceptions-and-preparedness-behaviors#:~:text=This%20study%20shows%20that%20individuals,to%20take%20disaster%20preparedness%20actions.

Figure 12: Word Cloud for Category 4 Hurricane Year and Storm Name Mentions

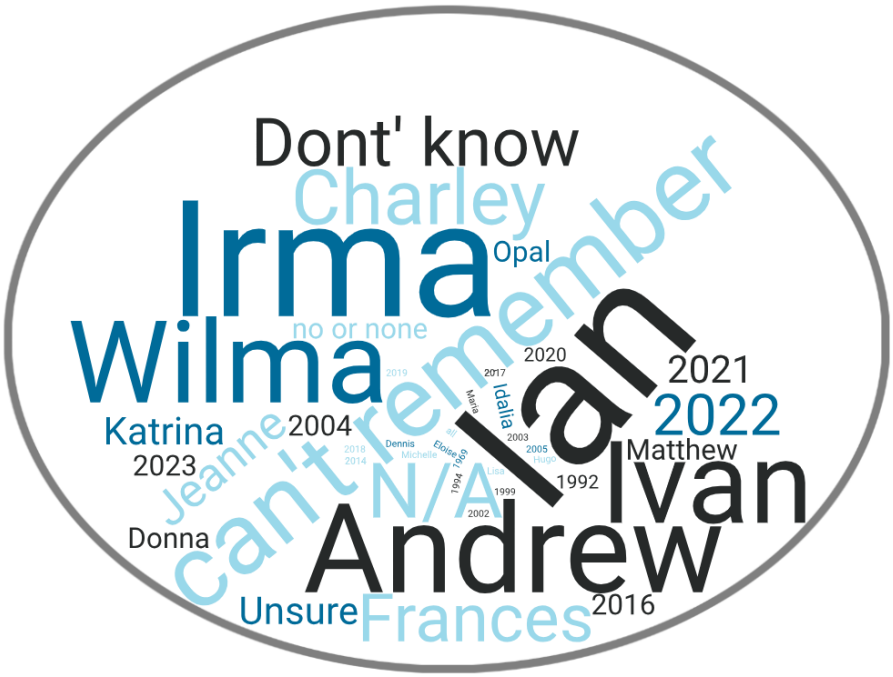
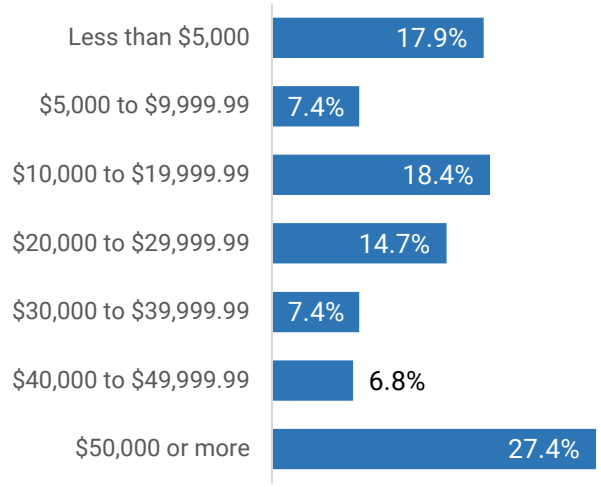


Figure 13: Word Cloud for Category 5 Hurricane Year and Storm Name Mentions

Of the 673 respondents with previous hurricane experience, about one-third had lived in a home damaged by a hurricane (241 or 35.8%), while 64.2 percent had not.

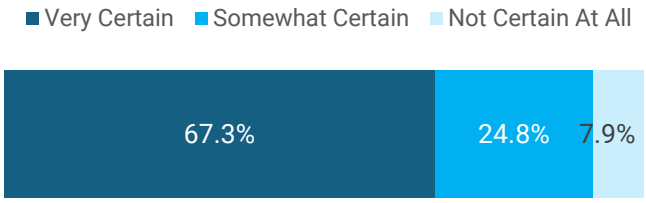
- Of these 241 who lived in a home damaged by a hurricane, 190 knew the damage in dollars caused by the hurricane. Of these, many had damages of $50,000 or more (27.4%), followed by $10,000 to $19,999 (18.4%), and less than $5,000 (17.9%).
- The 241 respondents whose homes had experienced hurricane damages, were asked to select their primary causes. Respondents could select more than one option and as such percentages exceed 100. The major sources of damages include wind damaging the roof (68.0%), wind debris breaking windows (30.7%), trees falling on the house (22.4%), flooding related to a hurricane (14.1%), ocean surge (2.5%), and something else (16.2%). Thirty-nine selected the 'something else' or 'other' option and provided 42 responses for the damages to their homes as three listed two types of damages. These include outdoor damages like damages to the patio, barbecue, cars, fence, pool, and a loss of trees (13); damages to ceilings or walls (6); electrical damages like damages to the electric box, the loss of power and damaged power lines (5); damages to doors (4); damages to the roof including water damage, tornado, tile replacement and detachment (4); all or multiple damages (3); other wind damages (3); flooding and demolishment of home (1); can't remember (1); lack of water (1); and plumbing damages (1).

Figure 14: 2024 Respondents by Estimated Hurricane Damages in Dollars



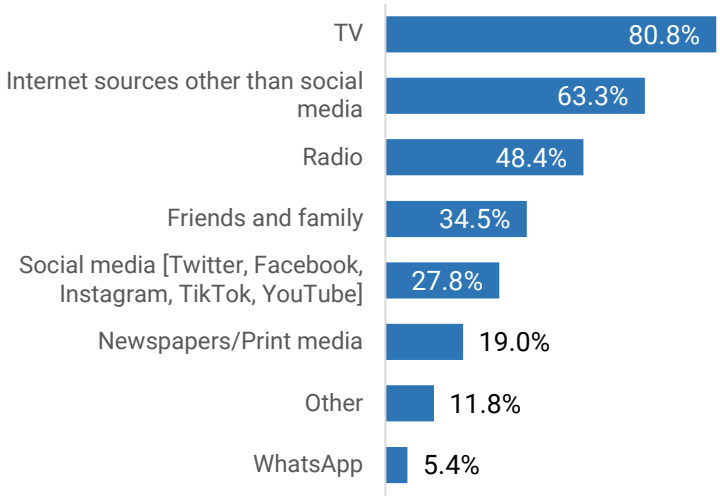
All respondents provided their self-evaluations of having the information needed to protect their homes. Six in ten were very certain they had all the information needed to protect themselves and their homes from hurricane damage (67.3%).

Figure 15: 2024 Respondents by Self-Assessments of Having the Information Needed to Protect Themselves/Homes from Hurricane Damage



All 802 respondents provided their information sources. The question requires respondents to select three sources; however, some resisted and only said one or two options, with the caller specifying in the 'other' category which options they wanted. As such, the 'other' responses were recoded, and extra options were removed. Only true 'other' responses where respondents listed an option not from among the choices or specified information like a particular website or relative as their source of information were considered 'other'. Because respondents could select up to three options, percentages exceed 100. Many respondents rely on TV (80.8%), Internet sources other than social media (63.3%), and radio (48.4%). Ninety-five respondents selected the 'other' option and provided 99 fill-in responses, as four who selected from among the existing options also provided fill-in responses. These include cell phone including phone applications, text messages, phone warnings, and general phone response (23); government or official sources including building management government office or website, the National Hurricane Center (18); news including local news, The Weather Channel, and general news (12); other sources including self, experience, a radar, weather, and animals (11); coworkers and work sources except for works for government response (11); websites and other forms of research except government sites (7); friends, family, Church and neighbors (6); general commentary (3); email (2); does not rely on any source (2); All Time Radio (1); all (1); alarm system (1); and other print source like brochures (1).

Figure 16: 2024 Respondents by Their Top 3 Information Sources



These results mirror the findings from previous studies in other areas. Understanding the media channels residents use to access information before, during, and after a hurricane is critical to guide mitigation and response efforts. The Survey on Trauma, Resilience, and Opportunity among Neighborhoods in the Gulf (STRONG II) was a combination of mail surveys and telephone surveys in 2018 in Texas for a total of 295 responses. Most respondents answered questions about their media channel preferences before, during, and after Hurricane Harvey. Of the 286 responses for media channels used before the storm, 73.1 percent stated they relied on Television as their main source of news regarding the hurricane. Of the 280 responses for media channels used during the storm, 68.2% relied on Television as their main source compared to 67 percent who indicated the same news source after the storm.[15]

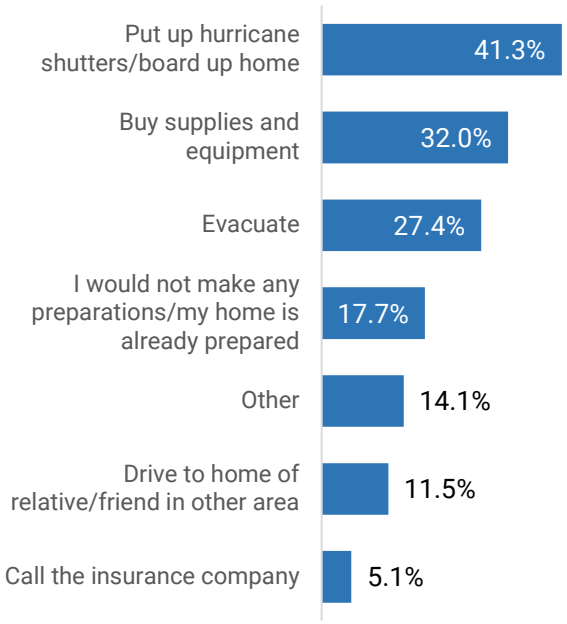
[15] Petrun Sayers, Elizabeth L., Andrew M. Parker, Rachana Seelam, and Melissa L. Finucane. "How Disasters Drive Media Channel Preferences: Tracing News Consumption before, during, and after Hurricane Harvey." Journal of Contingencies and Crisis Management 29, no. 4 (2021): 342–56. https://doi.org/10.1111/1468-5973.12348.

Factor 2: Having a Plan

According to the Centers for Disease Control, families should prepare for a possible hurricane by creating a plan including an emergency supply kit, locating the nearest shelter that meets their needs (pet-friendly, etc.), getting their home secure, getting the car ready, staying informed, and being ready to evacuate, especially if ordered.[16]

From its earliest days, the survey asked respondents if they had a plan in the event of a serious hurricane with a yes or no question and then had a follow-up question where they could specify what their plan entailed. In 2024, this question was modified, and all 802 respondents were given a series of options for how they would prepare their homes, as well as an option for not preparing. As respondents could select more than one preparation option, percentages exceed 100. Additionally, those who selected they would not prepare their home could not select from among other preparation options. Some stated they would not make any preparations or felt their home is already prepared (17.7%). Many would prepare by putting up hurricane shutters (41.3%), followed by buying supplies and equipment (32.0%). One hundred and thirteen respondents provided 127 'other' responses, as respondents could specify more than one way to prepare their home. These include: already have, would buy or collect food and supplies like gasoline and water (22); have everything they need including hurricane windows or do not need to prepare (16); bring in and secure patio furniture and outdoor items (16); generator (13); go to shelter or evacuate (10); does not know how to prepare (9); reinforce windows and doors (6); depends on the storm (6); would not go anywhere and other evacuation specifications (6); sand bags (6); other preparations like bringing in cars, charging devices, securing documents and calling the homeowner (5); general commentary (5); follow emergency warnings and instructions of others like family and government (5); and listen to the radio or news (2).

Figure 17: 2024 Respondents by Plans for a Serious Hurricane



All 660 respondents who would prepare their homes for a hurricane indicated when they would begin to prepare. Callers were instructed not to read the 'not sure option', but some still selected this (1.7%). Many stated their house is prepared and could be secured within a few hours (44.7%), while three in ten stated they would prepare when a hurricane watch is issued (30.6%). Forty-three respondents provided 45 'other' responses for when they would prepare their home as two that selected from among the other options also provided fill-in information. These include another timeline like as far in advance as possible or before hurricane season (12); 2 to 3 days before (10); other information like how they would prepare but not a timeline (6); 4 days to 1 week before (6); the timeline for preparation depends on other factors (5); less than 24 hours (3); 24 hours (2); and eight or more days before (1).

[16] "Preparing for Hurricanes or Other Tropical Storms." Centers for Disease Control and Prevention. Accessed October 8, 2024. https://www.cdc.gov/hurricanes/safety/index.html.

In 2024, all 802 respondents were asked a new question regarding different economic factors and whether these factors had impacted their ability to prepare for a hurricane. As respondents could select more than one option, percentages exceeded 100. Additionally, those who stated that none of these factors had affected their hurricane preparedness could not select any other economic factor. Most stated that none of these factors has affected their ability to prepare for a hurricane (58.2%), while one in four stated that the cost of insurance has affected their preparedness (25.7%).

Twenty-six respondents provided fill-in options. These include other costs like home modifications, health, groceries and equipment (6), inflation, general finances and money (5), all of the above or everything (5), does not know (3), energy including gas access, energy shortages, the cost of a generator (3), mobility issues and old age (2), general climate issues (1), and unstable work (1).

Figure 18: 2024 Respondents by When They Would Prepare for Hurricane

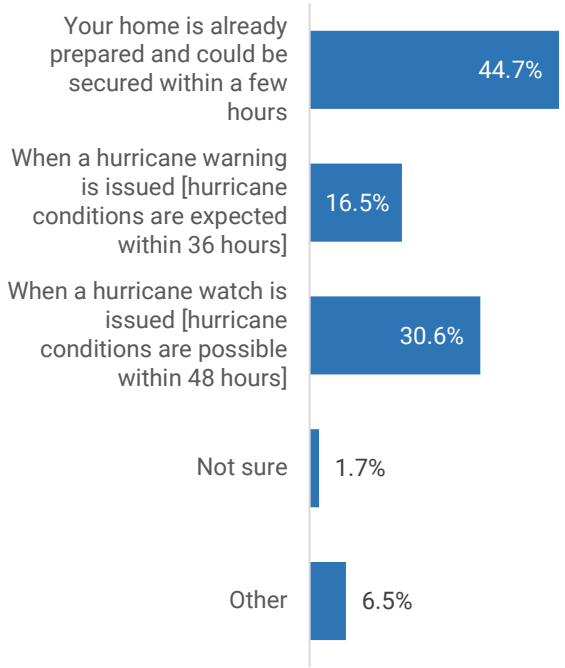
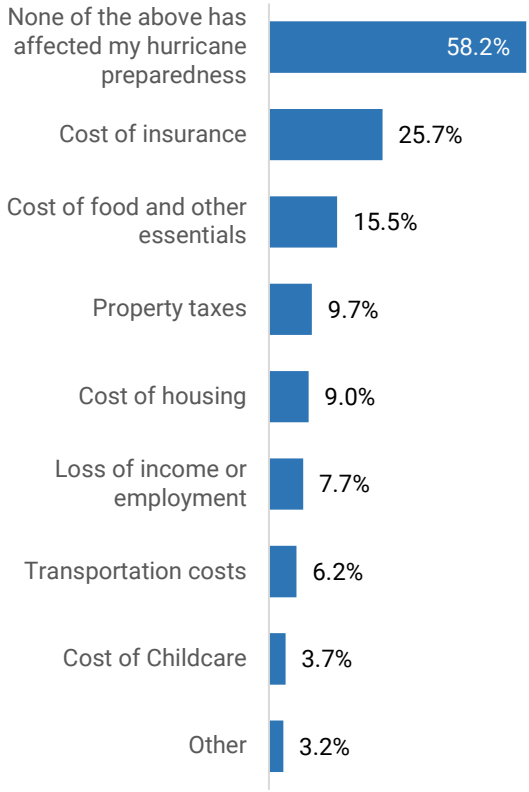


Figure 19: 2024 Respondents by Factors Impacting Their Ability to Prepare



Factor 3: Understanding the Risk

All respondents specified their levels of vulnerability to damage from a hurricane, related tornado, or flooding hazards. Although most did not feel too vulnerable (53.4%), many felt somewhat vulnerable (35.0%) or extremely vulnerable (11.6%).

All respondents were asked if their home was located in a flood or evacuation zone. Despite callers being instructed not to read the do not know option, fifty-four respondents stated they did not know (6.7%). The majority stated their home was not located in a flood or evacuation zone (60.6%). Fourteen percent stated their home was in a flood zone, while 11.1 percent stated it was in an evacuation zone, and 7.6 percent stated their home was in both a flood and evacuation zone.

- Of the 173 respondents who specified living in a flood zone, many did not know the flood zone letter designation of their home (27.7%), while about one-third lived in a letter A high flood risk zone (34.7%), followed by letter B or moderate risk (22.5%) and letter C or low risk (15.0%).
- Of the 150 respondents who specified living in an evacuation zone, many did not know the letter for their zone, despite callers being instructed not to read that option (39.3%), while 18 percent lived in a letter C zone or evacuated if advised by authorities. Sixteen percent lived in a letter A zone or evacuate for all hurricanes (16.7%), followed by letter B zone or evacuate for category 3 and above hurricanes (15.3%), letter E zone or evacuate if advised by authorities (6.0%), and letter D zone or evacuate if advised by authorities (4.7%).

Flood insurance rate maps (FIRMs) are used to show areas of low, moderate, and high flood risk through a series of zones. These maps are then utilized to determine local building requirements as well as flood insurance rates. Flood maps help banks and mortgage lenders set the insurance requirements for

Figure 20: 2024 Respondents by Perceptions of Storm Vulnerability

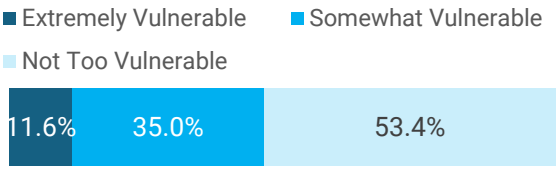
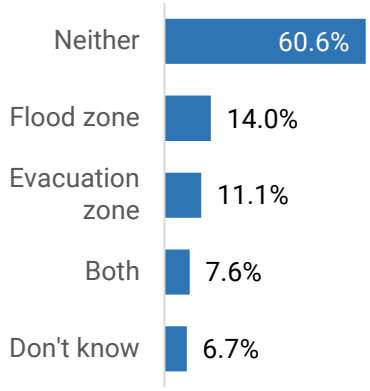


Figure 21: 2024 Respondents by Home Location in Floor or Evacuation Zone



properties in an area. The Federal Emergency Management Agency (FEMA) creates flood maps based on these zones. FEMA manages the National Flood Insurance Program (NFIP) that is delivered to communities through over 50 insurance companies.[17] According to FEMA, special area zones designated as beginning with the letter A or V are considered high-risk zones with a minimum probability of 25% of an occurrence of flooding for a 30-year mortgage. Areas beginning with letters B, C, or X are considered non-special flood hazard areas and pose a moderate to low risk, while areas beginning with the letter D have possible but undetermined flood hazards or have not been studied.[18]

[17] "Flood Maps." FEMA.gov. Accessed October 23, 2024. https://www.fema.gov/flood-maps.

[18] FEMA Flood Maps and Zones Explained." FEMA.gov, April 4, 2018. Accessed October 23, 2024. https://www.fema.gov/blog/fema-flood-maps-and-zones-explained.

FEMA creates and updates these maps by collaborating with community leaders, local engineers, and surveyors to collect data for the creation of maps. A computer model then creates an updated map that the community can adopt after a 90-day period, during which the public can submit technical information to appeal the map.[19] After this period, a community will receive a final letter of determination and is given six months to comply. After this, the new map will go into effect. Once a map is adopted, revisions can be made by submitting a letter of map change (LOMC) request.[20]

Homeowners can submit such a letter and provide survey information to request an amendment to a map. This option is available to those whose home may have inadvertently been shown to be part of a high-risk zone but are not actually in such a zone.[21] Designation within such a zone impacts the need for flood insurance as well as their homeowner's insurance rates. Updated maps impact communities across the state and the insurance costs of households. For example, in August 2024, tens of thousands of South Florida homeowners particularly in Broward and Miami-Dade counties have been notified they are required to purchase flood insurance as flood zones have expanded in recently updated flood maps.[22] This could lead to increased appeals to change flood zone designations. However, regardless of flood zone designation beginning in 2024, new policyholders and those requesting renewal will be required to purchase flood insurance through a phased approach based on the value of properties with all policies required to purchase insurance by January 01, 2027.[23]

To understand if respondents correctly identified if their home was located in a flood zone, the research team plotted the addresses of respondents on GIS and compared their responses to their location within a flood zone. In a subsequent section of the report, responses are analyzed for the years 2022 to 2024 across Enterprise Florida and the Florida Department of Economic Opportunity's eight regions. One of the regions is Tampa Bay. Given how the Tampa Bay region (Citrus, Hernando, Hillsborough, Manatee, Pasco, Pinellas, and Sarasota counties are the counties surveyed from that region) experienced two devastating hurricanes in 2024, the research team has analyzed their home's location in a flood zone and compared with their responses to being or not being in a flood zone. Flood Zones A and AE are the flood insurance rate zones identified in our survey and associated with the 100-year floodplains. Of the 2024, 212 Tampa Bay region respondents, 31 were located in a flood zone. Of these, 12 stated they did not live in a flood zone (38.7%), while 19 correctly stated that their home was in a flood zone (61.3%). Of the 181 respondents who were not located in these flood zones, 8 did not know if they were in a flood zone or not (4.4%), 149 correctly identified that they were not in a flood zone (82.3%), and 24 incorrectly stated they were in a flood zone (13.3%).

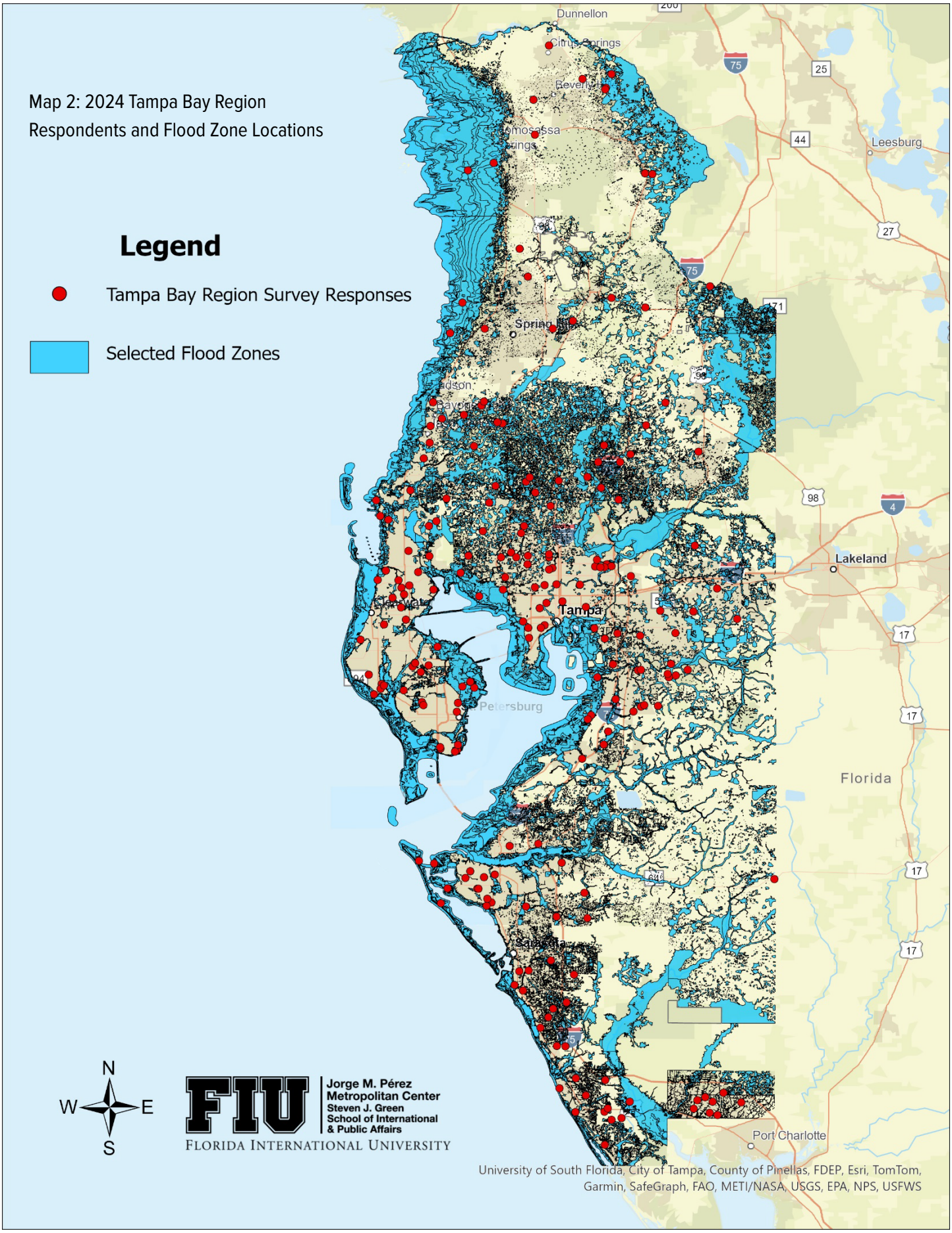
[19] "Flood Maps." FEMA.gov. Accessed October 23, 2024. https://www.fema.gov/flood-maps.

[20] "Community Members' Guide to Initiating Map Revisions." FEMA.gov. Accessed October 24, 2024. https://www.fema.gov/flood-maps/change-your-flood-zone/guide-community-members.

[21] Ibid

[22] Vazquez, Christina. "Here's Why Thousands of South Florida Homeowners Are Being Told They Need Flood Insurance." WPLG, August 27, 2024. https://www.local10.com/news/local/2024/08/26/heres-why-thousands-of-south-florida-homeowners-are-being-told-they-need-flood-insurance/.

[23] Yanes, Nadeen. "Citizens Insurance Expands Flood Insurance Requirement to Those Not in Flood Zones." ABC Action News Tampa Bay (WFTS), February 6, 2024. https://www.abcactionnews.com/news/region-pinellas/citizens-insurance-expands-flood-insurance-requirement-to-those-not-in-flood-zones.


Map 2: 2024 Tampa Bay Region
Respondents and Flood Zone Locations
Legend
Tampa Bay Region Survey Responses
Selected Flood Zones
Dunnellon
Citrus Springs
Beverly Hills
Homosassa Springs
Leesburg
Spring Hill
Hudson
Bayonet Point
Tampa
Lakeland
Petersburg
Florida
Port Charlotte
N
W
E
S
FIU
Jorge M. Pérez Metropolitan Center
Steven J. Green School of International & Public Affairs
Florida International University
University of South Florida, City of Tampa, County of Pinellas, FDEP, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

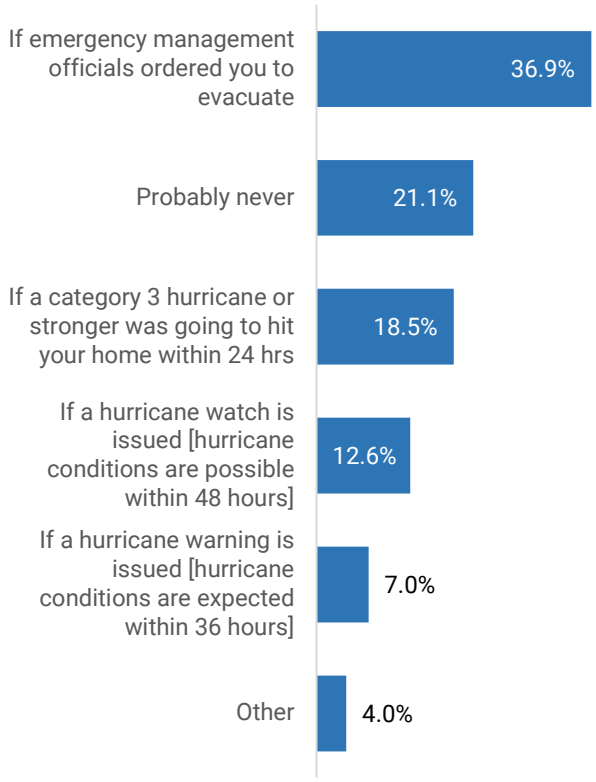
Factor 4: Willingness to Evacuate

Hurricane Katrina resulted in the death of 1,170 Louisiana residents, with a higher death risk associated with age. Based on autopsy reports, about one-third of deaths were caused by drowning (33%). Two-thirds of drowning deaths occurred in residential areas, suggesting the floodwaters trapped many. Furthermore, evacuees who left relocated to shelters, or public locations not designated as shelters "were less likely to be drowning victims."[24] Given this peril, it is imperative that residents evacuate prior to hurricanes and if ordered by officials.

The CDC administered an online survey in July of 2022 among 3,000 adults living in the coastal counties in eight Southern states: Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, North Carolina, and South Carolina. The survey found that around one in five (22%) indicated evacuating at least once in response to a hurricane. Furthermore, 53% of those who had a mandatory/voluntary evacuation order indicated evacuating at least once.[25]

All respondents indicated when they would evacuate. Some respondents indicated they would probably never evacuate (21.1%). Many would evacuate if emergency officials ordered them to evacuate (36.9%). Thirty-two respondents selected the 'other' option and provided 37 responses, as some who had selected one of the categories wanted to specify a condition of when they would evacuate, or in the case of two, the reason why they could not evacuate. These include: depending on other factors like other people or strength or pathway of the storm (11); other information provided about where to evacuate or would evacuate if unsafe to remain here and other commentary (9); do not know or unsure (5); less than 24 hours (4), 4 days to 1 week before (3), other timeline (2), the reason why they cannot evacuate (2), and 2 to 3 days before (1).

Figure 22: 2024 Respondents by When They Would Evacuate

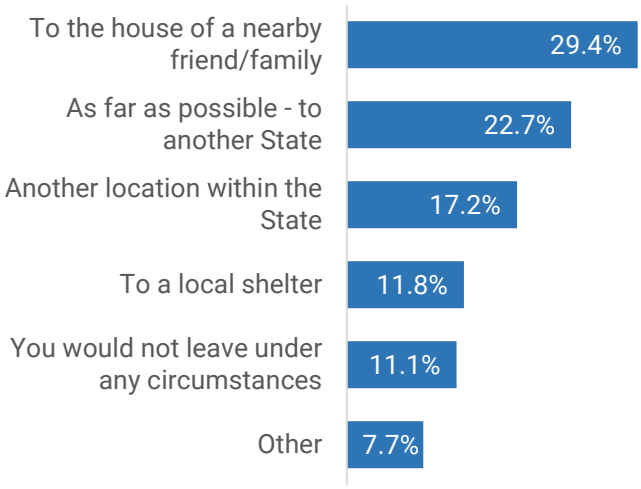


[24] Markwell, Poppy, and Raoult Ratard. Rep. Deaths Directly Caused by Hurricane Katrina . Louisiana Department of Health, n.d. https://ldh.la.gov/assets/oph/Center-PHCH/Center-CH/stepi/specialstudies/2014PopwellRatard_KatrinaDeath_PostedOnline.pdf.

[25] "Sheltering during Hurricanes." Centers for Disease Control and Prevention, November 15, 2022. https://www.cdc.gov/nceh/hsb/disaster/sheltering-during_hurricanes.html.

A July 2022 CDC survey of coastal counties in southern states found that among those who evacuated during 2020-2021, only 11 percent went to a public shelter.[26] All of the 2024 survey respondents (802) were asked where they would evacuate if they needed to evacuate. This was also asked of those who indicated in the previous question that they would probably never evacuate. Interestingly, 40.2 percent of those who would probably never evacuate in the previous question selected the option that they would not leave under any circumstances. As the findings suggest, there is a significantly different proportion of respondents who, when given evacuation options, would choose to evacuate. This means that when respondents are given a cue about alternatives, including those that are low-cost or nearby, they would evacuate. Many of the 802 respondents stated they would evacuate to the home of a nearby family or friend (29.4%), as far as possible to another State (22.7%), or to another location within the state (17.2%). Sixty-two respondents selected the 'other' option, but 66 provided fill-in responses, as four selected from one of the existing options. Responses include: do not know or will decide later (21); the opposite direction, depending on the storm, inland, or away from the storm (18); a hotel or other location that is not necessarily an official shelter including anywhere safe, and a Church shelter (17); government or law enforcement station, hospital, or school that can sometimes serve as an official storm shelter (5), cannot evacuate for work reasons (2), where government tells them to evacuate (2), and another country (1).

Figure 23: 2024 Respondents by Location of Evacuation



A key part of evacuations is having vehicles available in the household. All respondents were asked how many vehicles were available in the household. Many had 2 to 3 vehicles (55.7%) while others had 1 vehicle (34.8%), 4 or more vehicles (6.9%), and none (2.6%).

[26] "Sheltering during Hurricanes."

Factor 5: Preparing and Ensuring the Home

The final factor in hurricane preparedness is physically securing one's home and preparing it for a hurricane, as well as ensuring their home is insured in the event of a storm.

All respondents were asked to rank their household preparedness on a scale of 1 to 5, with 1 being the least prepared and 5 being the most prepared. All respondents answered and provided a numerical response. The average score was 4.0. Many had ratings of 4 (36.8%) or 5 (38.3%).

All 720 homeowners were asked a series of questions regarding current and projected insurance rates. All homeowners were asked if they were confident that they could come up with the amount of their deductible for their homeowners' insurance for unexpected hurricane damage. Most stated being certain they could come up with the full amount (66.5%), while a large number did not know (8.5%), or preferred not to say (3.3%). Some indicated they probably could not come up with the amount of their deductible (5.4%) or were certain they could not (4.9%)

All 720 homeowners were asked how their homeowners' insurance had changed throughout the years: in the last year, 1 to 3 years, 3 to 5 years, and 5 to 10 years. During these time intervals, most respondents stated their homeowner's insurance had increased. The following are figures for the significant increases of over 10% by time frame.

- Past one year: 43.5%
- 1-3 years: 42.9%
- 3-5 years: 34.6%
- 5-10 years: 28.9%

Figure 24: 2024 Homeowners by Confidence in Ability to Pay Insurance Deductible

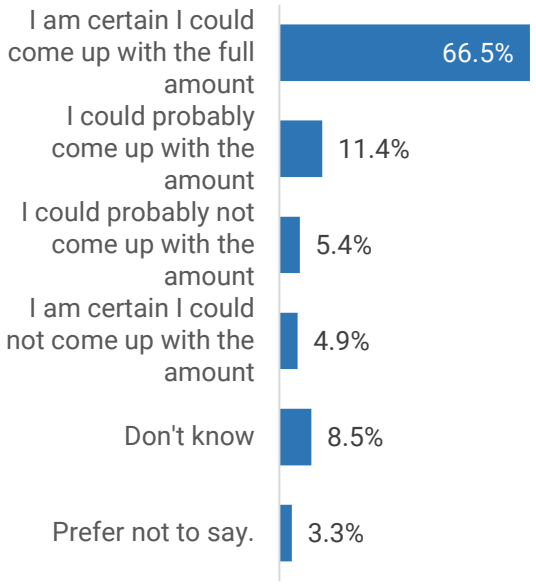
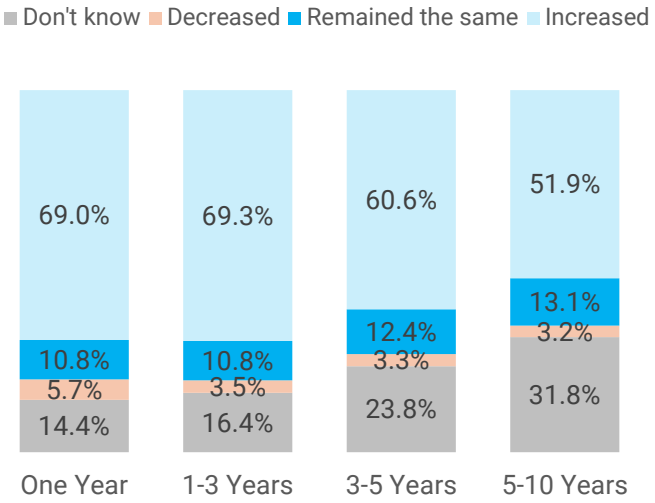


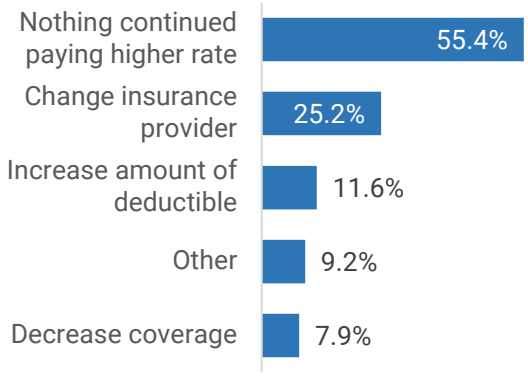
Figure 25: 2024 Homeowners by Insurance Rate Changes in the Last Years



All homeowners who stated they had experienced increased homeowners' insurance rates in any of the four time periods were asked what actions they took as a result of these increases (567). Percentages exceed 100 as respondents could select more than one option. Additionally, those who selected that they would do nothing and continued paying the higher rate could not select from among the list of options to bring down their premium. Of these 567 respondents, most stated they did nothing and continued paying the higher rate (55.4%). One in four changed their insurance provider (25.2%). Fifty-two respondents selected the 'other' option and provided fill-in responses. These include trying to work with the insurance company or trying to lower their premium by complaining to their insurance, shopping around, an insurance review, trying to pay, diminishing their liability, not making claims, scheduling an inspection, and considering changing their deductible (12); canceling or responses of no longer having insurance (12); does not know, cannot remember or not enough information (7); lower expenses, save money or get a second job (4); move to another home, sell the home or move out of state (4); all of the above or a combination of the available choices and other factors (3); no control over insurance actions including the condominium makes these decisions (3); changed the roof, windows, or other feature of the property (3); commentary and unclear response including no comment response (3); and got new insurance and unclear if this was a new policy or a policy with another company (1).

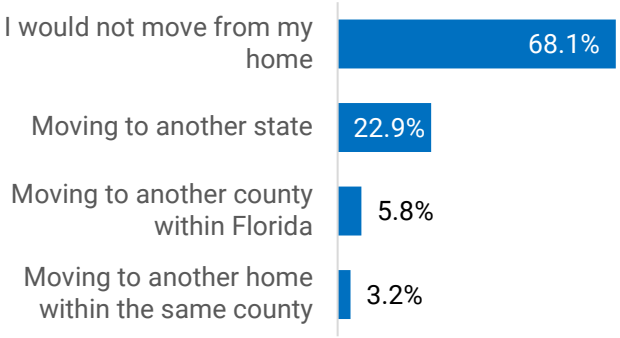
In 2024, the 567 respondents who stated their homeowner's insurance had increased in any of the four time frames provided, were asked for what value would they be comfortable insuring their property if they could insure it for less than its replacement value. A large percentage did not know (17.6%), while four in ten wanted to be insured for the full replacement value (45.5%), followed by 80% to less than 100% (22.9%), less than 60% (7.9%) and 60% to less than 80% (6.0%).

Figure 26: 2024 Homeowners with Insurance Rate Increases by Actions Due to Increases



In 2024, these 567 homeowners who experienced insurance rate increases were also asked if they would consider different relocation options if insurance costs and homeownership costs were to continue increasing at the current rate or higher. Most would not move from their home (68.1%), while two in ten would move to another state (22.9%).

Figure 27: 2024 Homeowners with Insurance Rate Increases by Relocation Options



All 720 homeowners were asked if they would consider canceling their homeowner's insurance policies if their mortgage was paid off. Many stated they would not (57.1%), while about one in four would (26.5%), and 5.6 percent already dropped their insurance. One in ten stated this was not applicable or they did not have insurance (10.8%).

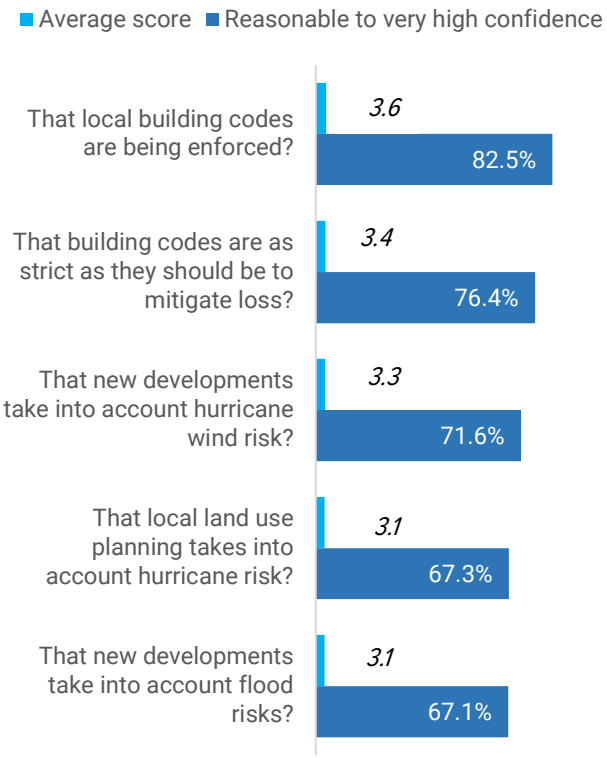
Sea Level Rise and the Role of Government

Respondents in 2024 were asked a series of questions about the role of government in disaster recovery, sea level rise, and factors influencing their home purchase decisions. All respondents (802) were asked which level of government should help reimburse costs if a major hurricane were to impact their area. As they could select more than one option, percentages exceed 100. Additionally, respondents who selected that the government should not be involved in recovery efforts could not select from among different government levels. Although two in ten felt the government should not be involved in recovery efforts (20.0%), many felt the federal government (57.6%), or state government (40.4%) should reimburse costs from hurricane damages. One in four stated that local government should reimburse costs (25.2%).

All 802 respondents were asked their evaluations of their confidence on a five-point scale on certain aspects of land use, new developments, and building codes. The scale went from one or no confidence to two, three or reasonable confidence to four, and 5 or very high confidence.

- Many respondents had reasonable to very high confidence that local building codes are being enforced (82.5%) with an average score of 3.6 out of 5.
- Many had reasonable to very high confidence that building codes are as strict as they should be to mitigate loss (76.4%) with an average score of 3.4 out of 5.
- Many had reasonable to very high confidence that new developments consider hurricane wind risk (71.6%) with an average score of 3.3.
- Many had reasonable to very high confidence that local land use planning considers hurricane risk (67.3%) with an average score of 3.1.
- Many had reasonable to very high confidence that new developments consider flood risks (67.1%) with an average score of 3.1.

Figure 28: 2024 Respondents by Confidence in Building and Local Land Use

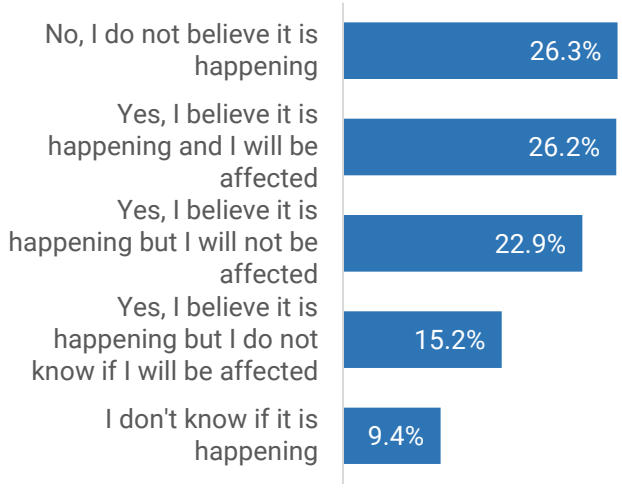


All 2024 respondents (802) were asked questions regarding sea level rise. First, they were asked if they believed sea level rise is occurring and if it would affect them. A total of 64.3% of respondents, or 516, felt sea level rise is happening. This includes those who believed it would affect them, those who felt it would not, and those who were not sure if it would. Around one in four felt it was occurring, and they would be affected (26.2%), followed by those who believed it was happening, and they would not be affected (22.9%). One-fourth do not believe it is happening (26.3%).

- The 210 respondents who indicated sea level rise is happening and they will be affected were asked if they would consider selling their home in different programs, including the private market, as part of a government buyout program, or neither. Respondents could select more than one option, so percentages exceed 100, but those who selected neither could not select from the other options. Most stated neither (68.6%), while one in five would sell in the private market (23.8%), and 10.5 percent would sell their home as part of a government buyout program.

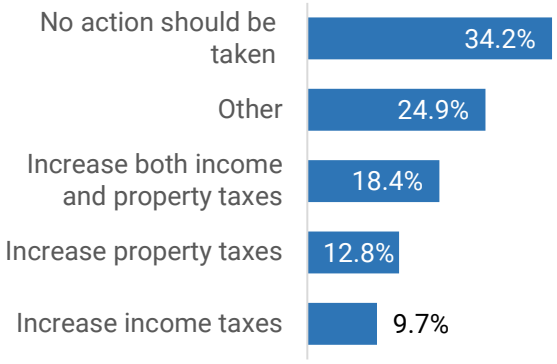
All 515 respondents who indicated sea level rise is occurring were asked how the government should fund its actions on sea level rise, including increasing property taxes, income taxes, both, other, and no action should be taken (callers were instructed not to read this option, but about one-third still indicated this). A total of 41.0 percent would accept some form of tax increase (increase income taxes or 9.7%, increase property taxes or 12.8%, and increase both or 18.4%). One hundred and twenty-eight respondents selected the 'other' option and provided fill-in responses. These include other types of tax increases like sales tax, cannabis tax, corporate tax, bill tax, 1% tax, a tax on the wealthy, a tax on certain properties or people like homes near the ocean (23); do not know, would have to study it or create an assessment (23); cut government spending including

Figure 29: 2024 Respondents by Views on Sea Level Rise



government salaries, and adjusting spending priorities like military spending (23); do not increase taxes or commentary on how they are already paying too much in taxes (17); have private donors, billionaires, the federal government, or others like fuel companies pay for it (16); general commentary on the government, sea level rise, or building by the ocean (13); does not want to answer or no specified answer (6); find other solutions but no solution listed (4); handle at the local or state level or create a state program (2); and lower taxes (1).

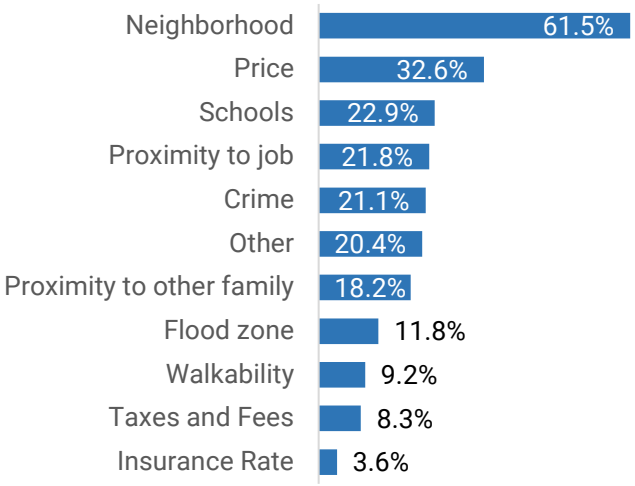
Figure 30: 2024 Respondents Who Believe Sea Level Rise is Happening by Ways to Fund Government Sea Level Rise Actions



All 802 respondents were asked if they are concerned about flooding in their area due to most of Florida's coastal areas having a very low elevation of 33 feet above sea level. Many were moderately (18.1%), extremely (10.5%), somewhat (12.6%), or slightly concerned (19.5%). Almost four in ten (39.4%) were not at all concerned.

All 720 homeowners were asked about the top three characteristics that were most important when they purchased their homes. As respondents could select up to three characteristics, percentages exceed 100. Many respondents stated neighborhood (61.5%), price (32.6%), and schools (22.9%) were the most important characteristics that impacted their home purchase. One hundred and forty-seven respondents selected the 'other' option and provided 150 responses, as three provided two other characteristics. These include location including the location in general, proximity to nature, the environment, the view, and proximity to the ocean (41); features of the house including the ease of care and maintenance, the color, privacy, safety, the size of the home and the type of home (36); liked or needed the house in general or for family reasons or no particular reason (15); proximity to other locations like town, churches, and stores, and general connectivity to high ways (13); none of the above choices (12); affordability and availability of the home including the cost of living and downsizing (7), did not buy the home including inherited the home or someone else purchased the home (7); other factors and general commentary (6), don't know or unsure (5); all of the above (4); community (2); and the government and politics (2).

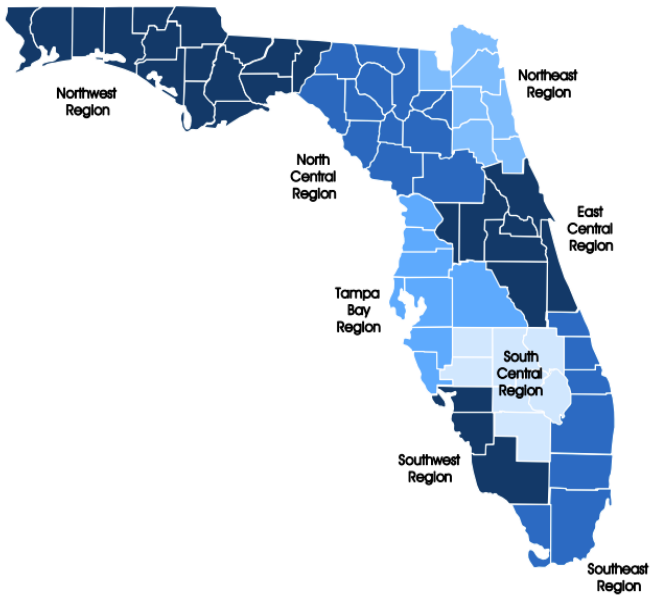
Figure 31: 2024 Homeowners by Characteristics in Purchasing Their Home



Regional Trends

To understand if hurricane mitigation and preparedness varied by region, three years of data have been analyzed to obtain sufficient samples for the most populous regions. From 2022 to 2024, the survey includes 2,412 responses or 802 responses from 2022, 808 from 2023 and 802 from 2024. Based on Enterprise Florida and the FL Department of Economic Opportunity (DEO), Florida can be divided into eight economic regions: Northwest, North Central, Northeast, Tampa Bay, East Central, Southwest, South Central, and Southeast regions. For this analysis, the four most surveyed regions will be studied: Southeast (39.6% of responses), Tampa Bay (26.7%), Southwest (8.8%) and Northeast (8.8%). Responses were aggregated by county based on the county variable provided for each response. Please see the table below for the 2022 population, survey responses and list of surveyed counties from each region.

Map 3: Florida's Eight Economic Regions



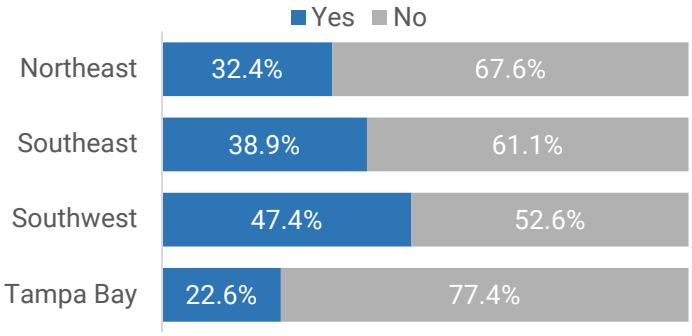
Source: Florida Department of Economic Opportunity, Florida's Economic Regions: Setting Florida's Strategic Direction

Table 1: 2022-2024 Respondents in 4 Most Populous Regions

Region Name	Total Population of Surveyed Counties (2022)	Survey Responses	Surveyed Counties in Region
Northeast	1,547,981	213	Duval, Flagler, Nassau, and St. Johns
Southeast	6,909,110	956	Broward, Indian River, Martin, Miami-Dade, Monroe, Palm Beach and St. Lucie
Southwest	1,423,108	212	Charlotte, Collier, Lee
Tampa Bay	4,344,670	643	Citrus, Hernando, Hillsborough, Manatee, Pasco, Pinellas, and Sarasota

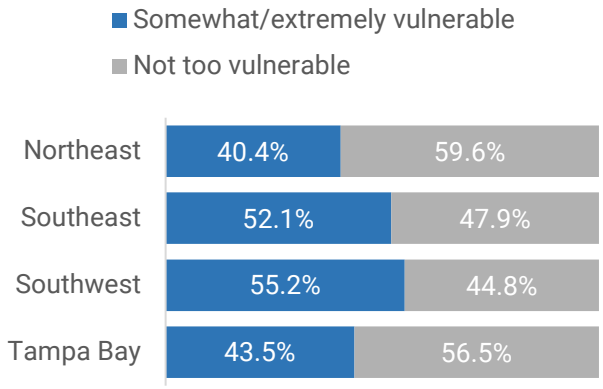
The following is a regional analysis for various questions throughout the survey where a difference of two percent or higher occurs between two or more regions. Respondents or the adult members of their households in the Tampa Bay Region were the least likely to indicate living in a home physically damaged by a hurricane (22.6%), while those in the Southwest were the most likely to have lived in a hurricane-damaged home (47.4%).

Figure 32: 2022-2024 Respondents by Living in Home Damaged by Hurricane and Region



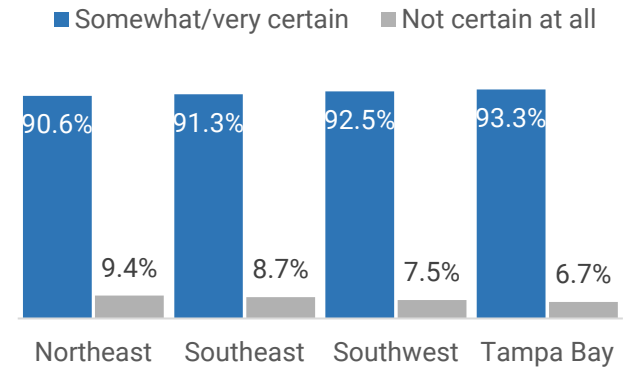
Sharp differences exist in terms of respondents' perceived levels of vulnerability to damage from a hurricane, related tornado, or flooding hazards, with the highest levels of vulnerability in the Southwest (55.2%) and Southeast regions (52.1%).

Figure 33: 2022-2024 Respondents by Perceptions of Storm Vulnerability and Region



Nine in ten respondents in each region were somewhat or very certain they had all the information needed to protect themselves from hurricane damage, with the highest evaluations in Tampa Bay and the lowest in the Northeast.

Figure 34: 2022-2024 Respondents by Self-Assessments of Having the Information Needed to Protect Themselves/Homes from Hurricane Damage and Region



Respondents varied slightly in terms of when they would evacuate, with the largest percentage of those who would evacuate if emergency management officials ordered them to in the Northeast region and the lowest in Tampa Bay (38.0% and 32.3% respectively).[27]

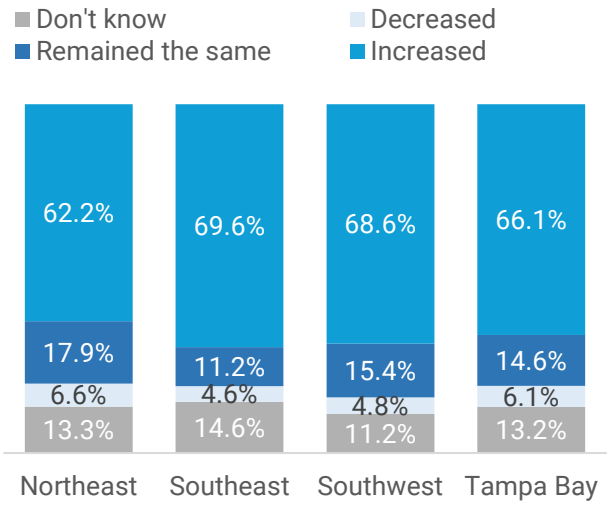
[27] In 2022, respondents had an additional evacuation option of will not evacuate due to COVID-19 concerns. This was removed in subsequent years. That option for 2022 data was combined with the probably never option. Open-ended responses were thoroughly recoded only in 2024.

Table 2: 2022-2024 Respondents by When They Would Evacuate and Region

	Northeast	Southeast	Southwest	Tampa Bay
If a hurricane watch is issued [hurricane conditions are possible within 48 hours]	10.3%	10.6%	11.8%	13.2%
If a hurricane warning is issued [hurricane conditions are expected within 36 hours]	8.5%	8.6%	9.4%	8.4%
If a category 3 hurricane or stronger was going to hit your home within 24 hours	19.7%	17.6%	18.4%	19.4%
If emergency management officials ordered you to evacuate	38.0%	35.3%	33.0%	32.3%
Probably never	20.2%	22.3%	24.5%	22.7%
Other	3.3%	5.8%	2.8%	3.9%

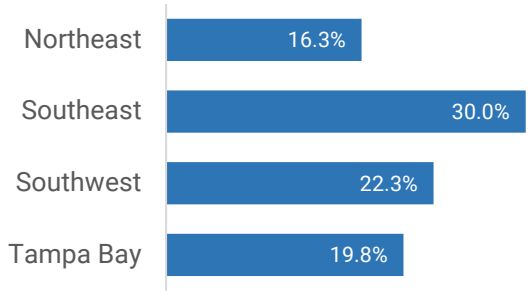
Depending on the region, homeowners indicated increases in their homeowner's insurance rates in the last year with the largest percentage of those reporting increases in the Southeast (69.6%) and Southwest (68.6%). In fact, in the Southeast the percentage of those who experienced a significant increase of over 10% in the last one year was over four in ten (47.0%).

Figure 35: 2022-2024 Homeowners by Insurance Rate Changes in the Last Year and Region



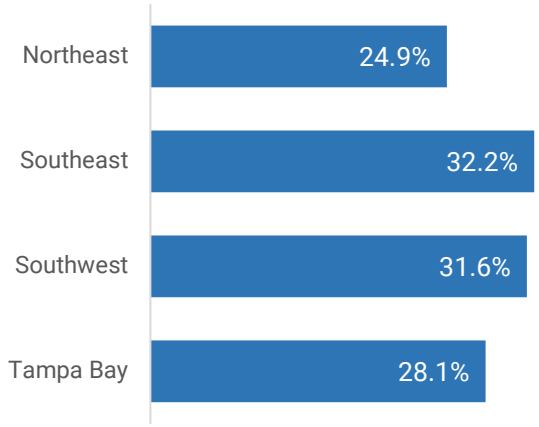
Due to these increases, it is unsurprising that the largest percentage of those who indicated they would consider dropping their insurance if their mortgage was paid off could be found in the Southeast region (30.0%), while those with the least willingness to drop their insurance were in the Northeast region (16.3%).

Figure 36: 2022-2024 Homeowners by Willingness to Drop Insurance and Region



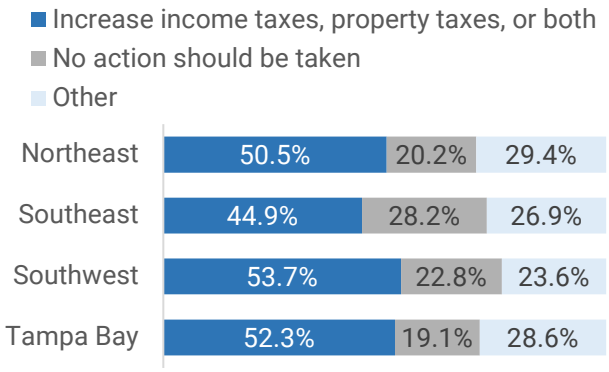
Respondents in the Southeast and Southwest were most likely to be moderately or extremely concerned about flooding in their area (32.2% and 31.6% respectively).

Figure 37: 2022-2024 Respondents by Flooding Concerns and Region



Respondents varied in terms of their willingness to accept tax increases to fund government initiatives on sea level rise.[28] The largest percentage of those willing to accept increased taxes was in the Southwest while the largest percentage of those not willing to accept increases was in the Southeast (53.7% and 44.9% respectively).

Figure 38: 2022-2024 Respondents by How Government Should Fund Sea Level Rise Initiatives and Region



[28] In 2022 and 2023, the question about how the government should pay for sea level rise mitigation efforts (increase taxes, etc.) was asked only to those who believe sea level rise is occurring and who in an earlier question did not specify the government in not responsible for sea level rise while in 2024 it was asked to all respondents who believe sea level rise is occurring as that other question on the role of government was not asked.

Appendix: 2024 Annual Hurricane Preparedness and Mitigation Poll Questionnaire

Hello, I am _____, calling from Florida International University. We're conducting a survey on residents' perceptions of hurricane threats and damage reduction as well as how the state of the current economy has affected you and your household. The identity of anyone answering our questions will be kept completely confidential, but your answers will help Florida be better prepared the next time a hurricane approaches and inform policy makers on how the current economic situation has affected their citizens. I need to talk to one of the adults responsible for your household, 18 or older. Would that be you?

Q1 Is your home a

- ○ Single Family Home, Detached (1)
- ○ Townhome (2)
- ○ Apartment/Condominium (3)
- ○ Manufactured or Mobile Home (4)
- ○ Other (5) _____

Q2 Do you own or rent your home?

- ○ Own (1)
- ○ Rent (2)

Q3 Please tell me, in what year was your home built?_____ [yyyy]

If respondent indicates home was built prior to 1995 for Q3, ask Q3B. If not, continue to Q4 How many years have you been.:

Q3B Have any upgrades or modifications been made to the property? [[MARK ALL THE RESPONSES MENTIONED] Roofing upgrades (1)

- ☐ Impact windows (2)
- ☐ Drainage upgrades (3)
- ☐ Structural upgrades/raised home (4)
- ☐ No upgrades made (5)
- ☐ Other upgrades (specify)_____ (6)

Q4 How many years have you been a permanent resident of Florida? [write a full number] _____

Q5 Have you or any adults in your household experienced any of the following? [ASK ABOUT THE NAME OF THE EVENT AND/OR YEAR]

- ❑ Tropical Storm (1) _____
- ❑ Category 1 (2) _____
- ❑ Category 2 (3) _____
- ❑ Category 3 (4) _____
- ❑ Category 4 (5) _____
- ❑ Category 5 (6) _____
- ❑ NONE OF THE ABOVE (7)

If NONE OF THE ABOVE Is Selected, Then Skip to Q9 How vulnerable do you feel to ...

Q6 Have you or any adults in your household lived in a home physically damaged by a hurricane?

- ☐ Yes (1)
- ☐ No (2)

If No Is Selected, Then Skip to Q9 How vulnerable do you feel to ...

Q7: If so, what was the estimated damage in dollars? [write in] _____

Q8 Can you tell me what were the primary causes of damage to your home? Was it the debris in the wind breaking your windows, wind damaging your windows, ocean surge, flooding, trees falling on your home, or something else? [MARK ALL THE RESPONSES MENTIONED]

- ❑ Wind Debris Breaking Windows (1)
- ❑ Wind Damaging the Roof (2)
- ❑ Ocean Surge (3)
- ❑ Flooding Related to a Hurricane (4)
- ❑ Trees Falling on House (5)
- ❑ Something Else (SPECIFY) (6) _____

Q9 How vulnerable do you feel to damage from a hurricane, related tornado, or flooding hazards? Do you feel…

- o Extremely Vulnerable (1)
- o Somewhat Vulnerable (2)
- o Not Too Vulnerable (3)

Q10 If a serious hurricane threatened your home how would you prepare? [MARK ALL THE RESPONSES MENTIONED . DO NOT READ OPTIONS]

- ☐ Put up hurricane shutters/board up home
- ☐ Buy supplies and equipment
- ☐ Evacuate
- ☐ Call the insurance company
- ☐ Drive to home of relative/friend in other area
- ☐ I would not make any preparations/my home is already prepared
- ☐ Other _____

Ask Q10B if an option other than 'I would not make any preparations' is selected

Q10B When would you begin to prepare your home for a hurricane? [READ LIST]

- o When a hurricane watch is issued (hurricane conditions are possible within **48 hours)** (1)
- o When a hurricane warning is issued (hurricane conditions are expected within **36 hours)** (2)
- o Your home is already prepared and could be secured within a few hours (3)
- o Other (4) _____
- o Not sure (DO NOT READ) (5)

Q11 Considering yourself and others in your household, how certain are you that your household would have all the information needed to protect yourselves and your home from hurricane damage? Are you …

- o Very Certain (1)
- o Somewhat Certain (2)
- o Not Certain at All (3)

Q12 Please select your top three sources of information?

_____Internet sources other than social media (1)

_____Radio (2)

_____TV (3)

_____Newspapers/Print media (4)

_____Friends and family (5)

_____Social media (Twitter, Facebook, Instagram, TikTok, YouTube) (6)

_____WhatsApp (7)

_____Other (8)

Q13 On a scale from 1 to 5, with 1 being least prepared to 5 being most prepared, how would you rate your household preparedness.

- o 1
- o 2
- o 3
- o 4
- o 5

Q14 Have any of these factors impacted your ability to prepare for a hurricane/storm? [MARK ALL THE RESPONSES]

- ☐ Property taxes (1)
- ☐ Cost of insurance (2)
- ☐ Cost of housing (3)
- ☐ Transportation costs (4)
- ☐ Cost of food and other essentials (5)
- ☐ Cost of Childcare (6)
- ☐ Loss of income or employment (7)
- ☐ Other (specify) _____ (8)
- ☐ None of the above has affected my hurricane preparedness (9).

Q15 Is your home located in a flood or evacuation zone? [ASK WHAT IS THE LETTER DESIGNATION FOR THE FLOOD OR EVACUATION ZONE, READ OPTIONS IF NECESSARY]

- ☐ Yes, flood zone (1) _____ [MARK LETTER: A (HIGH FLOOD RISK), B (MODERATE) OR C (LOW RISK)]
- ☐ Yes, evacuation zone (2) _____ [MARK LETTER: A (EVACUATE FOR ALL HURRICANES), B (EVACUATE FOR CATEGORY 3 AND ABOVE HURRICANES), C THROUGH E (EVACUATE IF ADVISED BY AUTHORITIES)]
- ☐ Yes, both flood and evacuation zone (3) _____ [MARK LETTERS]
- ☐ Neither flood, nor evacuation zone (4) _____
- ☐ Don't know (DO NOT READ) (5) _____

Q16 When would you evacuate? (READ LIST and SELECT ONE)

- ○ If a hurricane watch is issued (hurricane conditions are possible within **48 hours)** (1)
- ○ If a hurricane warning is issued (hurricane conditions are expected within **36 hours)** (2)
- ○ If a category 3 hurricane or stronger was going to hit your home within 24 hours (3)
- ○ If emergency management officials ordered, you to evacuate (4)
- ○ Probably never (5)
- ○ Other () _____

Q17 If you needed to evacuate, where would you go?

- ○ To a local shelter (1)
- ○ To the house of a nearby friend/family (2)
- ○ Another location within the State (3)
- ○ As far as possible – to another State (4)
- ○ You would not leave under any circumstances (5)
- ○ Other (6) _____

Q18 How many vehicles are available in the household? [specify number] _____

Ask questions Q19 to Q22 only if own (1) is selected for Question Q2. If rent (2) is selected for Q2, skip to Q24 if a major

Q19 What is the dollar amount deductible on your home insurance policy?

- ☐ (1) [write in amount] $_____
- ☐ (2) Do not know

Q20 How confident are you that you could come up with $[amount given for policy deductible in Q19] for unexpected hurricane damage?

- (1) I am certain I could come up with the full $[amount given in Q19].
- (2) I could probably come up with $[amount given in Q19].
- (3) I could probably not come up with $[amount given in Q19].
- (4) I am certain I could not come up with $[amount given in Q19].
- (5) Don't know
- (6) Prefer not to say.

Q21 How has your home insurance rate changed in the last:

	Decreased Significantly (Over 10%) (1)	Decreased Somewhat (1-10%) (2)	Remained the Same (3)	Increased Somewhat (1-10%) (4)	Increased Significantly (Over 10%) (5)	Don't Know (6)
One Year (1)						
1- 3 Years (2)						
3-5 Years (3)						
5-10 Years (4)						

Ask Q21B only If (4 to 5 or increased somewhat or increased significantly) are selected for Q21. If options 1-3, or 6 are selected skip to Q23 In recent years…

Q21B As a result of this increase, what actions did you take?

- (1) Change insurance provider.
- (2) Increase amount of deductible.
- (3) Decrease coverage,
- (4) Other _____
- (5) Nothing, continued paying higher rate.

Q21C If you could insure your property for less than its replacement value, what is the lowest range of replacement value for which you are comfortable insuring?

- 100% (I want to be insured for the full replacement value)
- 80% to <100%
- 60% to <80%
- <60%
- Don't know [DO NOT READ]

Q22Which of the following options would you consider taking if insurance costs and homeownership costs were to continue increasing at the current rate or higher?

- Moving to another home within the same county
- Moving to another county within Florida
- Moving to another state
- I would not move from my home

Q23 In recent years there has been a trend among homeowners who have paid off their mortgage to cancel their homeowner insurance policies. Would you consider it if your mortgage was paid off?

- Yes (1)
- No (2)
- I have already dropped my insurance (3)
- Not Applicable (Don't have insurance) (4)

Q24 If a major hurricane impacts your area, which of these levels of government should help to reimburse your costs? (Read options and select all those chosen by respondent)

- ☐ Federal government (1)
- ☐ State government (2)
- ☐ Local government (3)
- ☐ Government should not be involved in recovery efforts (4).

Q25 On a scale of 1 to 5 where 5 is the highest, how much confidence do you have?

No confidence Reasonable confidence Very high confidence

1 2 3 4 5

	1	2	3	4	5
That local building codes are being enforced?					
That local land use planning takes into account hurricane risk?					
That new developments take into account hurricane wind risk?					
That new developments take into account flood risks?					
That building codes are as strict as they should be to mitigate loss?					

Next, I would like to ask you a few questions about sea level rise…

Q26 Do you believe sea level rise is happening in Florida, and do you think your property or finances will be affected?

- ☐ Yes, I believe it is happening and I will be affected (1)
- ☐ Yes, I believe it is happening, but I do not know if I will be affected (2)
- ☐ Yes, I believe it is happening, but I will not be affected (3)
- ☐ No, I do not believe it is happening (4)
- ☐ I don't know if it is happening (5)

If (1) is selected, ask.

Q26B Would you consider selling your home: [read all and select]

(1) in the private market

(2) as part of a government buyout program

(3) neither

If YES Is NOT Selected in Q26, Then Skip to Q28 Most of Florida's coastal areas

Q27 If the government were to take action on sea level rise, how should they fund those initiatives?

- ☐ Increase income taxes (1)
- ☐ Increase property taxes (2)
- ☐ Increase both income and property taxes (3)
- ☐ Other (4) _____
- ☐ No action should be taken (DO NOT READ)

Q28 Most of Florida's coastal areas have a very low elevation (under 10 meters (33 feet) above sea level) and are especially vulnerable to flooding associated with storm surges. How concerned are you about flooding in your area?

- ☐ Extremely concerned (1)
- ☐ Moderately concerned (2)
- ☐ Somewhat concerned (3)
- ☐ Slightly concerned (4)
- ☐ Not at all concerned (5)

Ask question Q29 only if own (1) is selected for Question Q2. If rent (2) is selected for Q2, skip to Q30.

Q29 When you purchased your home, which characteristics were the most important (SELECT 3)

1. Neighborhood ____
2. Schools ____
3. Crime_____
4. Price _____
5. Walkability _____
6. Taxes and Fees _____
7. Insurance Rate _____
8. Flood zone _____
9. Proximity to other family_____
10. Proximity to job _____
11. Other (specify) _____

Q30 How long do you plan on living in your current address? [READ AGE RANGES AND LET RESPONDENT PICK]

- ☐ Less than 1 Year (1)
- ☐ Between 1 to <3 Years (2)
- ☐ Between 3 to <5 Years(3)
- ☐ Between 5 to <10 Years (4)
- ☐ Between 10 to <20 Years(5)
- ☐ More than 20 Years (6)

Finally, I just have a few general background questions and we will be finished.

Q31 Could you please tell me your age? [READ AGE RANGES AND LET RESPONDENT PICK]

- ☐ 18-34 (1)
- ☐ 35-54 (2)
- ☐ 55-64 (3)
- ☐ 65 OR OLDER (4)
- ☐ NO RESPONSE (5)

Q32 What is your gender?

- ☐ Female (1)
- ☐ Male (2)
- ☐ Other (3) [specify] _____

Q33 Including yourself, how many people …

live in your household (1) _____
are under 12 years old (2) _____
are 65 or older (3) _____

Q34 What is your marital status?

- ☐ Single/Never Married (1)
- ☐ Married or living with partner (2)
- ☐ Widowed (3)
- ☐ Divorced (4)
- ☐ Separated (5)
- ☐ Other (6) _____

Q35 What is the highest grade of school completed by an adult member of your household?

- ☐ Less than high school (1)
- ☐ High school (2)
- ☐ Some college (3)
- ☐ College graduate (4)
- ☐ Graduate Degree (5)
- ☐ Other (6) _____

Q36 What racial groups do you identify yourself with?

- ☐ White/Caucasian (1)
- ☐ Black/African American (2)
- ☐ Asian (3)
- ☐ Native American (4)
- ☐ Other (5) _____

Q37 Are you of Hispanic/Latino descent?

- ☐ Yes (1)
- ☐ No (2)

Q38 What language is most often spoken in your home? [DO NOT READ, MARK RESPONSE]

- ☐ English (1)
- ☐ Spanish (2)
- ☐ Other (3) _____

Q39 Please tell me which is the income range for your household.

- ☐ Under $20,000 (1)
- ☐ $20,000 to <$30,000 (2)
- ☐ $30,000 to <$50,000 (3)
- ☐ $50,000 to <$75,000 (4)
- ☐ $75,000 to <$100,000 (5)
- ☐ Over $100,000 (6)
- ☐ Don't know/No response (7)

These were all the questions I had. Thank you very much for your responses. Have a nice evening.

Q40Please record information from the call list.

Address (1) _____
City (2) _____
ZIP Code (3) _____
Phone Number (4) _____