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Perceptions of Local Leaders Regarding Postdisaster Relocation of Residents in the Face of Rising Seas

Omur Damla Kuru[a], N. Emel Ganapati[a] and Matthew Marr[b]

[a]Public Policy and Administration Department, Florida International University, Miami, FL, USA;
[b]Department of Global & Sociocultural Studies, Florida International University, Miami, FL, USA

ABSTRACT

Despite the growing literature on sea level rise (SLR), the current understanding of how SLR risks influence postdisaster relocation remains limited. This paper addresses this knowledge gap by examining how local leaders (i.e., public officials and community leaders) perceive: (a) resident relocation decisions in a disaster-affected community that is also vulnerable to SLR; and (b) the role of SLR in residents' relocation decisions. Based on the case of Monroe County, Florida, which was affected by Hurricane Irma in 2017, our findings suggest that local leaders perceive residents' relocation decisions as being driven by predisaster challenges that were exacerbated by conditions in the aftermath of the hurricane—specifically: the lack of affordable housing, low wages, and high cost of living. Leaders believe that SLR-related risks have little/no direct influence on relocation decisions; instead, they suggest that the community's focus is on the next storm and community members' short-term needs.

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Climate change produces a range of impacts on the natural and built environment [Intergovernmental Panel on Climate Change (IPCC), 2007]. One such impact is sea level rise (SLR), which poses significant risks not only to coastal communities but also to inland settlements, which are likely to be the destination of environmental immigrants (IPCC, 2014; Tacoli, 2009). People migrate not only in response to slow-onset changes (i.e., *stresses*), such as SLR, but are also displaced by episodic or rapid-onset hazards (i.e., *shocks*) such as hurricanes (Romieu et al., 2010). The Internal Displacement Monitoring Centre (IDMC, 2020) reported that—worldwide—approximately 287.9 million people were internally displaced due to disaster events between 2008 and 2019.

We focus on how local leaders perceive that SLR influences resident relocation after a hurricane, a topic that has received little attention in the literature. Some scholars (e.g., Zanocco et al., 2018) report that the connections between stresses and shocks are acknowledged in communities with high climate change awareness where governors frame extreme events in the context of climate change. Therefore, it is important to explore the perceptions of local leaders that have the potential to draw attention, or influence the lack of attention, to the link between climate change and episodic events. Our research questions are: (a) How do local leaders (i.e., community leaders and government officials) perceive resident relocation decisions in a disaster-stricken area

CONTACT Omur Damla Kuru okuru003@fiu.edu
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vulnerable to SLR? and (b) How do local leaders perceive the role of SLR in relocation decisions within their community? We use a case study of Monroe County (the Florida Keys), which experienced Hurricane Irma in 2017 and is extremely vulnerable to risks associated with SLR and tropical weather events. We analyze data from semistructured interviews ($n = 22$), a focus group ($n = 5$), participant observation, and reviews of secondary sources.

Our findings show that local leaders perceive resident relocation to be mainly driven by chronic economic challenges in the Keys exacerbated by Hurricane Irma. These challenges include high housing costs and low wages incompatible with a high cost of living. Leaders think that SLR risks are invisible to—or not well understood by—some residents and that residents' political views influence their SLR risk perception. Leaders also think that the residents are concerned about the next hurricane (i.e., shock) and meeting their short-term needs (e.g., food, shelter, employment). It is important to note that leaders' perspectives, usually shaped by short-term economic and political concerns, play a crucial role in planning processes, raising climate change awareness, and advocacy efforts towards action. Hence, a shift towards a longer horizon is necessary for policymaking perspectives to address coastal resilience in vulnerable communities.

The study's significance is threefold. First, postdisaster recovery presents a window of opportunity for making communities more adaptive and resilient (Berke et al., 1993). Local leaders are key actors who influence recovery and resilience decisions, shaping the long-term trajectories of their communities. Second, the Florida Keys are among the first places in the United States to experience the adverse impacts of SLR. Therefore, our findings will inform local leaders' advocacy efforts to increase climate change and SLR awareness initiatives in other coastal communities vulnerable to SLR, especially those that are driven by tourist economies (e.g., communities in California and Hawaii). There is much room for enhancing such awareness in the United States, where only 12% of voters viewed climate change as the most critical issue compared to other issues such as the economy and coronavirus during the U.S. 2020 presidential election (Montanaro, 2020). Third, our study sheds light on the challenges of addressing long-term environmental stress like SLR after a hurricane without first resolving the community's short-term needs (e.g., housing-related problems, economic disparities).

Literature Review

Both stresses and shocks can potentially disrupt livelihoods, leading to displacement, environmental migration, or relocations. Stresses such as SLR can lead to voluntary environmental migration or government-led relocations (Bisaro et al., 2020; Hinkel et al., 2018; Taiban et al., 2020). Shocks such as hurricanes can lead to the temporary or permanent displacement of residents, many of whom may not be able to return to their homes (Landry et al. 2007; Levine et al., 2007; Sastry & Gregory, 2014). Some displaced populations relocate—that is, they rebuild their lives in another place—on their own (King, 2017) or stay and rebuild (Maldonado, 2014) despite the potential for problems (e.g., economic challenges and posttraumatic stress) in their disaster-affected communities (Fussell et al., 2010; Robles & Mazzei, 2017).

Previous studies have investigated motivations to relocate away from, or return to, disaster-impacted communities in disaster recovery contexts (Clark et al., 1998; Do, 2020; Fussell et al., 2010; Landry et al., 2007; Morrice, 2013; Myers et al., 2008). Yet, as noted by a recent review of home buyout programs literature (Greer et al., 2021), the scholarship on relocation processes has limited application to the climate adaptation context. There is a dearth of research on the impact of SLR on this process, which could be attributed to two factors. The first factor involves deep complexities and uncertainties surrounding the SLR problem, as reflected in large differences in global predictions for SLR [see Oppenheimer (2019) and Bamber et al. (2019) for different projections]. Although there are many "known unknowns" about SLR—the exact level of increase being one example—there are also many "unknown unknowns" or "black swan events," which are

unpredictable events with potentially severe consequences (Taleb, 2007) that might affect SLR (Buurman and Babovic, 2016; Kopp et al., 2019). Furthermore, SLR projections are often studied at the global scale, interact with complex coastal systems including ecological, political, economic, social, and physical environments making risk very difficult to predict on a local level (Catenacci & Giupponi, 2013; Clarke et al., 2016).

The second factor relates to the challenge of unpacking the reasons for environmental migration. No matter the context, migration is "rarely made due to a single reason"; and it is difficult for researchers to separate environmental factors from other drivers of environmental migration (Upadhyay et al., 2015, p. 402). According to Lee (1996), migration involves a complex set of factors associated with the area of origin (i.e., *push factors* such as hurricanes) and with the area of destination (i.e., *pull factors* such as better employment opportunities) in addition to intervening obstacles (e.g., the distance between the area of origin and the destination), and personal factors (e.g., parents wanting a better future for their children). Similarly, environmental migration is provoked by a complex set of push and pull factors, including those that relate to economic livelihoods (e.g., poverty) and political or social factors (e.g., ethnic conflicts; Hauer et al., 2020; Maldonado, 2014; Oliver-Smith & Hoffman, 1999).

Previous studies have found conflicting evidence regarding SLR's impact on relocation or rebuilding following shocks. Several studies have suggested that shocks can help raise public awareness and build support for proactive measures on climate change (McAdam, 2017; McDonald et al., 2015; Moser, 2010; Renn, 2011). This stream of research echoes the arguments in the literature that present disasters as "focusing events" (Birkland, 1997) or as "windows of opportunity" (Berke & Campanella, 2006, p. 193) that can link recovery efforts with mitigation initiatives (Levine et al., 2007) and enhance the resilience of communities (Esnard, 2003; Wu and Lindell, 2004). Borrowing the terminology of Olshansky, Hopkins, and Johnson (2012), such opportunities for change "are not limited to physical infrastructure but also occur in political institutions and social networks" (p. 174). Therefore, policymakers can expect an increase in awareness of and/or more support for proactive measures (e.g., infrastructure-related improvements, changes in building codes), which help them tackle climate change impacts in a disaster-stricken area. In the wake of two consecutive hurricanes, Matthew in 2016 and Florence in 2018, for instance, voters in North Carolina showed increased awareness of the climate change problem and called for the government to take proactive action against climate change (Bruggers, 2018; Mandel, 2018).

Other studies have found limited to no link between shocks and SLR awareness in the affected communities. Zanocco et al. (2018) reported that in areas affected by "extreme weather events with relatively low scientific attribution to climate change" (p. 350), such as tornado outbreaks and wildfires (as opposed to hurricanes), residents make connections between these events and climate change. Zanocco et al. (2018) also noted, however, that these connections occur particularly in communities with high climate change awareness prior to the shocks and with reported harm from the event. Additional studies find no impact (Hamilton et al., 2016; Marquart-Pyatt et al., 2014) or often negligible and short-lived impacts (Konisky et al., 2016; Ray et al., 2017; Sisco et al., 2017) of shocks on climate change awareness, which the studies often attribute to factors such as political ideology (Zanocco et al., 2018). The findings of these studies are perhaps not surprising given the invisibility of the causes of climate change (e.g., greenhouse gases; Moser, 2010) as well as SLR (Harvatt et al., 2011).

Given competing claims regarding the possible impacts of shocks on SLR stress, it is difficult to assess how SLR might impact relocation processes following a shock in a given community. A hurricane, as a focusing event, for instance, might make the rather "invisible" SLR problem (Harvatt et al., 2011) more apparent to the residents and become a push factor for relocation. On the other hand, following a shock event, people might focus on their short-term needs instead of thinking long-term. In their book titled *The Ostrich Paradox: Why We Underprepare for Disasters*, Meyer and Kunreuther (2017) referred to this short-term focus (i.e., *myopia*) as: "a

tendency to focus on overly short future time horizons when appraising immediate costs and the potential benefits of protective investments" (p. 12). Burby (2006) highlighted this myopia among decision makers (although he used the term "local development paradox"): policymakers attend to more pressing issues in their communities that required their immediate attention (e.g., crime, lack of housing). When SLR's invisibility and myopia are combined with people's strong attachment to place following disaster events (Ganapati, 2009; Greer et al., 2020; Jamali & Nejat, 2016; Morrice, 2013), residents might stay and rebuild despite the SLR risks in the community.

To resolve the competing arguments regarding the possible impacts of SLR in relocation processes after a shock, the issue must be examined in context. Our study examines how SLR impacts coastal community residents' postdisaster relocation processes in the context of the Florida Keys. Although SLR's role in these processes cannot easily be distinguished from other motivations, it is crucial to shed light on how various push factors interact to influence relocation processes after a disaster event. Our study explores these interactions from the perspectives of local leaders who are important key informants (Yin, 2017, p. 91). Prior studies have interviewed key informants to obtain critical data about community displacement or relocation (Hasnat et al., 2022; Islam, 2018; McNamara & Des Combes, 2015). However, to our knowledge, no previous study has focused on the perceptions of local leaders regarding the link between SLR and resident relocation decisions in a vulnerable community that has been affected by a disaster.

Local leaders are typically socially well connected and provide a breadth and depth of knowledge about residents and community dynamics (Charmaz, 2014). They reside in the community and can share their own lived experiences as residents (providing *depth* of information), as well as their broader insights about why some decide to stay or leave their community (providing *breadth* of information). These leaders are the ones who discuss recovery-related issues with community members and have first-hand knowledge of residents' postdisaster needs (e.g., food, shelter). They play crucial roles in the community through their involvement in recovery planning processes and climate change awareness and advocacy efforts (towards taking actions).

Research Methodology

Our research utilized a contextualized approach to examine the role of SLR in postdisaster relocation by focusing on the case study of Monroe County, Florida, in the wake of Hurricane Irma. The majority of the population in the county—77,000 people (U.S. Census Bureau Official Website, 2019a)—lives on a chain of islands, the Florida Keys (see Figure 1), that are isolated from the mainland. Monroe County is particularly vulnerable to tropical storms and to the effects of SLR due to its low-lying topography (i.e., most of the county has an elevation of less than 2 m above sea level; Zhang et al., 2011), porous limestone geology, and dense population (Hughes & White, 2014; Park et al., 2011). The county houses the seventh-largest projected population at risk in the U.S. that would be impacted by a 0.9 m SLR (Hauer et al., 2016).

In addition to being prone to SLR-related risks, Monroe County is also vulnerable to tropical storms and hurricanes. The most recent catastrophe, Hurricane Irma, struck Monroe County on September 10, 2017, as a category four storm, significantly damaging the county's housing stock (Baumgard, 2017). Out of 55,000 housing units in total, the hurricane destroyed 1,906 homes (nearly 3.5%) and caused minor or substantial damage to 9,402 homes (more than 17%) in the county (Monroe County Government, 2017a).

Monroe County presents a unique case (Yin 2017), which is important to study for several reasons. First, Monroe County allows us to document the link between SLR—stress—and relocation decisions after Hurricane Irma—a shock. Second, Monroe County is likely to provide insights into the SLR-related challenges that may also be experienced in other coastal and tourism-based communities (e.g., island states) in coming years. Third, the study is of interest in the impact of

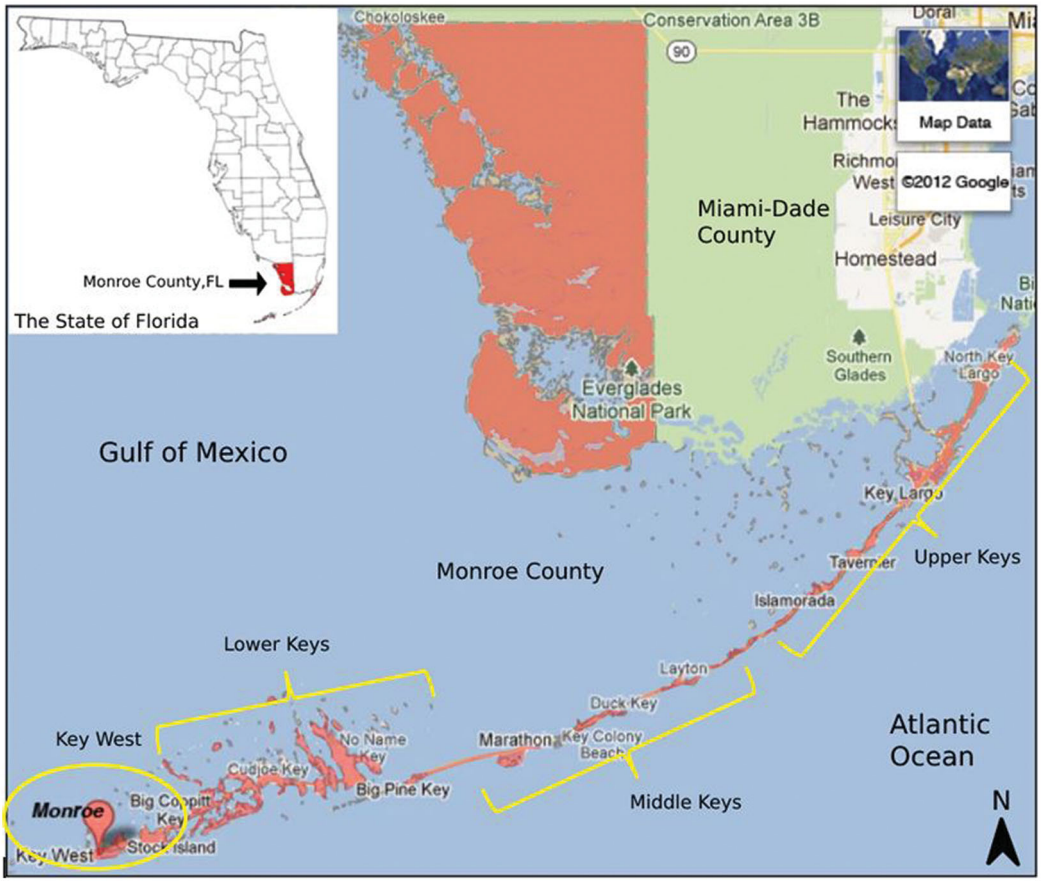

Figure 1. Location of the Florida Keys. Adapted from: Florida County Maps (2012).

SLR on housing due to the unique characteristics of the housing market in Monroe County: limited land available for housing, strict regulatory barriers to new housing construction, and informal housing units. Fourth, as suggested by Flyvbjerg (2006), extreme cases "often reveal more information than representative cases because they activate more actors and more basic mechanisms in the situation studied" (p. 229). A closer look at the Keys might reveal important insights into different stakeholders' responses to SLR's adverse impacts.

We conducted the case study between July 24 and August 12, 2018, nearly a year after Hurricane Irma made landfall. Interviews were the primary data collection method, and the interview data were triangulated with participant observation and a review of secondary sources. The study sample was purposive and included local leaders ($n = 27$) from two main groups: (a) community leaders (e.g., heads of church groups; $n = 15$); and (b) government officials, which included both elected officials (e.g., county commissioners; $n = 3$) and appointed officials (e.g., emergency management and urban planning officials; $n = 9$).

As noted by Glickman (2018, para. 2), "in the absence of leadership from the state and the President, local leaders in Florida are picking up the slack" in fighting climate change. Hence, the local leaders included in our study—especially the local government officials—had a substantial influence on long-term policy decisions related to SLR adaptation and mitigation or were familiar with the SLR initiatives (e.g., public awareness campaigns). Furthermore, they were knowledgeable about residents' needs and different aspects of disaster recovery (e.g., housing and business recovery). Hence, they familiarized our research team with the decision-making processes of residents, including themselves, who were, at the time of fieldwork, contemplating whether to stay

Figure 2. Board of County Commissioners meeting, July 31, 2018. Credit: Omur Damla Kuru.

or to leave the area. We identified the initial set of interviewees through a review of secondary sources (e.g., newspapers, government websites) on displacement, relocation, and hurricane impacts. This review revealed some nongovernmental organizations (e.g., Big Pine Key United Methodist Church), coalitions (e.g., the Long Term Recovery Group of Monroe County), and public officials (e.g., emergency management officials) that were actively involved in postdisaster recovery efforts after Hurricane Irma. We then expanded this sample using snowball sampling techniques and concluded participant recruitment upon reaching theoretical saturation. For confidentiality purposes, we assigned a pseudonym to each participant.

We conducted the interviews in person ($n = 17$) or via telephone ($n = 10$). The interview instrument included open- and closed-ended questions that provided qualitative and quantitative data (see the Supplemental material). It had subsections on various topics ranging from Hurricane Irma's impact on the community to the factors affecting residents' relocation or rebuilding decisions and the integration of SLR adaptation (or lack thereof) into the recovery process. The duration of the interviews varied from 45 min to 3.5 hr. We audiorecorded the interviews with the permission of the interviewee and transcribed interviews verbatim to use in the analysis.

We supplemented the data collected through interviews with participant observation, which allowed us to develop a more comprehensive, holistic, and intimate understanding of the context. Assuming the role of observer as participant (Gold, 1958), one of the researchers fully immersed herself as a participant at two public events: the Board of Monroe County Commissioners meeting on July 31, 2018 (see Figure 2 for the meeting venue), and the First Baptist Church of Islamorada weekly meeting on August 8, 2018. We also visited the most

Figure 3. Hurricane damage in Big Pine Key, August 2018. Credit: Omur Damla Kuru.

impacted neighborhoods in the county, including Big Pine Key (see Figure 3), No Name Key, and the City of Marathon to understand the extent of the hurricane damage. We recorded observations using photographs and *jottings*—brief notes taken in the field (Emerson et al., 2001). The jottings were then converted to field notes (Delamont, 1975) by expanding the descriptions of observations and interpreting them—following established research norms (Emerson et al., 2001, 2011; Mulhall, 2003; Phillippi & Lauderdale, 2018).

Additionally, we relied on a review of secondary sources, including U.S. Census Bureau statistics, local-level plans (e.g., the Monroe County Comprehensive Emergency Management Plan), damage assessments, emergency management and planning laws and regulations, and news articles from regional (e.g., *Miami Herald*) and local (e.g., *Key West Citizen*) newspapers. We also watched public meetings online ($n = 9$). Eight of the nine meetings were held by the Board of County Commissioners between September 27, 2017, and March 21, 2018 (available via Monroe County Government [2021]), and the last meeting was the Long-Term Recovery Group meeting held on July 31, 2017. The secondary sources provided us with a more in-depth understanding of the research context in addition to helping us identify the initial set of interviewees and triangulate primary data from interviews and observations.

For data analysis, we imported the transcriptions of interviews (i.e., open-ended questions) and observation field notes into the NVivo 12 software program, and coded them. We derived the initial set of codes from the research questions (i.e., the factors that affected residents' relocation decisions, and the influence of SLR on relocations). Our emergent subcodes derived from the interview data (e.g., economic, disaster-related, and housing-related challenges), the field notes (e.g., damage to buildings), and secondary sources such as the public meeting data (e.g., government funding for infrastructure repairs). The responses to the closed-ended

questions nested into the interview instrument were entered into and analyzed in Microsoft Excel.

Findings

Those Who Stayed and Those Who Left

Our interviewees explained that most Florida Keys residents stayed in the area or returned to rebuild their houses after Hurricane Irma, although many residents relocated to other areas. Our interview data highlighted the importance of *attachment to place* (Ganapati 2009; Greer et al., 2020) in residents' decisions to stay in the Keys. The origins of residents' enduring sense of place identity date back to 1982, when the Mayor of Key West, Dennis Wardlow, announced that the Keys was seceding from the United States and would henceforth be referred to as the "Conch Republic" (Conch Republic, n.d., para. 4). This decision was a response to the U.S. Border Patrol's roadblock and inspection, on the roads connecting the Keys and the mainland, to allegedly stop undocumented immigrants and drug smugglers from entering the mainland. The Conch Republic residents united against the inspection, which further cemented ties within the community and the residents' attachment to the place (Steinberg & Chapman, 2009).

Keys residents, referred to as Conchs, continued to be tightly connected to each other and to value their environmental surroundings and warm climate. As noted by Audrey, a female church representative who had worked and lived in the area for more than a decade, leaving the Keys was never an option for some: "We have a good friend .... You know multigenerational Conch and her mom is 93–94. Has never left! They [Conchs] never leave!"

Our interview data also suggest that the disaster strengthened residents' ties to each other and to the place, and that such attachment helped residents cope with the physical and psychological challenges they faced after the hurricane. Kelly, a middle-aged female representative, had been working for a recovery-focused nonprofit agency for nearly 10 years and had been delivering food and clothing donations in the post-Irma period. When asked about where people were staying one year after the hurricane, Kelly expressed her concerns about the people who had been sharing their stories about where they had to stay.

> A lot of them are on the streets. They're living in the woods. They're living in their homes that are not fit to live in .... They're living in their houses that don't have floors or dry wall or ceilings or the roof repaired. If they can live in their homes, they're living there no matter what shape they're in. They're living in their cars, and they're living with friends. Anywhere they can find a place to lay their head. Many people! And these are not normally homeless people.

Although the majority of residents stayed to rebuild, according to local leaders, some Keys residents left the area after Hurricane Irma or never returned from areas to which they evacuated. News outlets reported that nearly 3,000 people (approximately 4%) moved out of the Keys following Hurricane Irma (Goodhue, 2018; O'Hara, 2018), a report that is supported by U.S. Census data (U.S. Census Bureau Official Website, 2019a). The county's estimated population decreased by 2,785 (3.6%) from 2017 to 2018. There was a slightly increasing trend in population prior to 2017, with an exceptional decline in 2010 (U.S. Census Bureau Official Website, 2019a).

Why Have They Left? Factors That Affected Residents' Relocation

Our interviewees noted several factors that affected residents' relocation after the hurricane. When they were asked *Why do you think some of the residents have not returned after the hurricane?* nearly 80% reported challenging living conditions (e.g., high housing prices, low wages, and high cost of living) which predated Hurricane Irma as the primary driver of relocations. The interviewees stated that these preexisting living conditions were worsened by the effect of the

Table 1. Population, income, and housing characteristics of Monroe County, Florida.

	Monroe County, FL	Miami-Dade County, FL	Florida	United States
Population				
Population estimates (July 1, 2019)	74,228	2,716,940	21,477,737	328,239,523
Persons under 18 years (%)	14.2	20.2	19.7	22.2
Persons 18 to 24 years (%)	7.2	8.3	8.2	9.3
Persons 25 to 39 years (%)	18.1	20.7	19.1	20.5
Persons 40 to 64 years (%)	36.8	34.2	32.0	31.4
Persons 65 years and over (%)	23.7	16.7	20.9	16.5
Income and employment				
Median household income (in 2019 dollars)	70,033	51,347	55,660	62,843
Persons in poverty	9.9	15.7	12.7	10.5
Median household income level—$100 K or more (2019 - %)	30.26	23.5	24.4	27.9
Unemployment rate (2019 - %)	2.9	5.3	5.6	5.3
Housing				
Median housing value (2019; dollars)	494,100	289,600	215,300	217,500
Vacant housing units (2019; %)	40.1	13.7	18.1	12.1
Renter-occupied units (2019; %)	43.2	49.6	33.8	35.9
Gross rent as a percentage of household income (GRAPHI)—occupied units paying rent 30% or more (2019; %)	58.1	62.3	55.9	48.5

Data sources: Housing Characteristics 5 Year Estimates 2015-2019 (Table DP04), U.S. Census Bureau Official Website, 2019b; Population by Age and Sex, 2019 estimates (Table S0101), U.S. Census Bureau Official Website, 2019c; Income in the past 12 months, 5 Year Estimates (Table S1901). U.S. Census Bureau Official Website, 2019d; Economic Characteristics, U.S. Census Bureau Official Website, 2019e.

hurricane. This finding aligns with findings from previous studies (i.e., Cernea, 1997; Levine et al., 2007; Mayer et al., 2020) that highlight the importance of preexisting conditions in influencing relocation. The top drivers for relocation that our interviewees identified were high housing prices (44% of the interviewees), disaster impacts (37%), high cost of living (30%), and low wages (22%). Some interviewees (11%) noted the importance of a lack of access to social services (e.g., hospitals and schools) or challenges related to transportation (e.g., traffic congestion, infrequent bus service) as well as the disaster and its impacts. Each of these drivers is discussed below.

A Lack of Affordable Housing in Snowbirds' Paradise

Promoting neoliberal interests (e.g., prioritizing economic development and wealthier households) adversely impacted the recovery of low-income homeowners, renters, and public housing residents in the Mississippi Gulf coast in the post-Hurricane Katrina period (Lowe, 2012). In the Keys, low-income households had already been economically burdened by the tourism-dependent housing market before Hurricane Irma. With its year-round sunny weather and beautiful beaches, the Keys attracts not only tourists but also migrants from other parts of the country and beyond, especially from the northern parts of the country—the so-called "snowbirds." Proximity to amenities such as open and naturally attractive places may increase the appeal of a particular area and lead to higher housing values, even if the labor market offers low wages (Izón et al., 2016). In Monroe County, approximately 70% of the population earns less than $100,000 per year (see Table 1). Yet the median value of owner-occupied housing units is $494,100, nearly 2.3 times higher than both the national and the state average and 1.7 times higher than the median value in nearby urban Miami-Dade County. The median rental rate of a 2-bedroom housing unit in Monroe County is $2,268 (Monroe County Government, 2020). Most residents in the Keys experience a rent burden, defined as spending 30% (or more) of household income on rent (Meltzer & Schwartz, 2016), which further illustrates the housing affordability problem in the Keys; 58.1% of households pay more than 30% of their income on gross rent (gross rent as a percentage of household income—GRAPHI), compared with 48.5% in the United States.

Low-income households are particularly rent-burdened in the Keys because of the shortage of affordable housing there. Although some nonprofit organizations offer subsidized housing or land solutions (e.g., Land Trust; Habitat for Humanity) in areas like Big Pine Key, the number of available subsidized units does not sufficiently meet the demand for such units. Besides, these units serve a limited area. The South Florida Comprehensive Economic Development Strategy report (South Florida Regional Planning Council, 2017), emphasizes fostering tourism in the Keys without enough attention paid to housing the workforce.

Some of our interviewees reported that due to high housing costs, working-class residents sometimes shared single-family houses with others or lived in ground-level homes or mobile homes that did not meet the building code standards and/or that were located in flood zones. Others traveled daily from more affordable areas in south Miami-Dade County (e.g., Homestead and Redland) to their workplace—typically the Upper Keys. A substantial proportion (38%) of firefighters working in the Keys, for instance, were reported to live on the U.S. mainland (Axford, 2016). This is not an option for those who work in the Lower Keys—Key West and the Big Pine Key area—however, because the commute from south Miami-Dade County could take up to 5 hr each way—depending on traffic and the mode of transportation.

The housing affordability problem in the Keys is closely associated with growth management restrictions. Zoning regulations restrict construction in many areas through the Rate of Growth Ordinance (ROGO; passed in 1992). ROGO is a growth management tool that establishes a competitive point-based system for allocating new residential or commercial building permits. Within this system, a limited number of permits are issued each year based on Monroe County's progress in achieving its state-set goals. Each applicant competes against other applicants located within the Keys' subareas: the Upper Keys, the Lower Keys, and the Big Pine and No Name Key area.

ROGO was introduced to protect the Keys' fragile environments (e.g., wildlife and environmental areas housing mangroves and Key deer species) and to ensure timely evacuation of residents in the event of a hurricane (Monroe County Government, 2019). Sean, a church representative, explained the rationale behind the regulations in the Keys:

> There is a lot of land that you can't build on because of environmental regulations. This is a very unique habitat. We have like 17 endangered species down here .... You can't just throw up a whole bunch of houses here .... For one thing, you got to realize we're surrounded by water. We don't get hit every single hurricane season but ... the Keys are unique geographically. Like the ROGO units are tied to our evacuation because we have one road in and out. That's it!

ROGO allows some exceptions to those who apply for affordable housing permits. Although these applicants compete with others as well, their competition is not limited to the subarea. They compete against other affordable housing applicants across the Keys. However, according to the same interviewee, the county government might be reluctant to provide other exceptions to affordable housing projects. Referring to a case when the county declined to provide permits for approximately 400 affordable housing units, Sean suggested that the county was "afraid," because

> There are people who are waiting to sue the county because they have ROGO units that they're never going to be able to ... build on, and they know it! All those people ... are going to sue them when they [the county] run[s] out of ROGO units ... they [the people] would use this as evidence. [They would say] You could have given those [ROGO units] to me. Instead, you let those poor people use it for housing .... You know, kind of a weird political-legal thing.

The Keys' low elevation and limited habitable land affect land values and insurance rates negatively. Keys residents, especially those who had a mortgage, must pay expensive flood and wind insurance that can exceed their mortgage payments (Botkin-Kowacki, 2019), and these insurance premiums were rising annually due to higher and more frequent tides (South Florida Sun Sentinel, 2019).

Vacant housing units also contribute to the housing affordability problem. As Table 1 shows, the percentage of vacant housing units in Monroe County (40.1%) is approximately 3 times that of state and Miami-Dade estimates and 4 times the national estimate. This is largely due to the prevalence of expensive vacation homes and investment properties of high-income households, a stock that is not accessible to working-class families. The owners of these vacation homes and working-class individuals are highly interdependent on one another in the Keys. Sean, adding that he had been working three jobs to earn a living, explained this interdependence:

> all these rich people come down here. So who's going to serve … their food in the restaurants? Who's going to clean their houses? Who's going to teach the children? Who's going to patrol the streets? We have a saying here 'the Keys are rich man's paradise and poor man's hell'. All of the people who take care of them [rich people], all the people who have to survive when the tourism drops off …. They have a hard time making it.

Wages Not Compatible With the Cost of Living

High housing prices are accompanied by low wages—which are incompatible with the high cost of living in the Keys. Our interviewees reported that the wages could not keep up with the high cost of living in the Keys where many people had to work at multiple jobs to meet their needs. Like many other coastal developments in Florida, the Keys' economy is dependent on tourism. The tourism industry is supported by accommodation and food services, where 7,823 people work (more than 10% of the population), followed by retail trade (4,719 people or 6% of the population; Data USA, 2018). These industries mainly include small businesses with low-wage jobs. Whereas vacation homeowners have their second or third homes in the area, working-class families have to spend a substantial portion of their income to meet their housing needs. Mary, a high-level government official, explained the situation:

> So there's limited housing stock which drives the price of housing very high … and the wages do not keep up with that cost of living based on housing. So most people in the Keys are spending at least fifty percent of their income on housing. Nationally, we know that that's not a good percentage. It should be maybe thirty [percent] or less and …. And many, many folks are spending up to seventy percent of their wages on housing.

In 2019, the County had a very low unemployment rate of 2.9% (U.S. Census Bureau Official Website, 2019e), lower than the pre-Irma unemployment rate of 3.3% (Florida Trend, 2016). This rate is much lower than the rate for the State of Florida in 2019 (5.6%) and the national rate in 2019 (5.3%; U.S. Census Bureau Official Website, 2019e). Matthis (2020, para. 2) suggested that the unemployment rate was low "because the unemployed cannot afford to live in the most expensive county in the state." The county has the most expensive survival threshold budget in the State of Florida; and more than half of its families with children fall into the Asset Limited, Income Constrained, Employed (ALICE) category or remain below the federal poverty line (United Way of Florida, 2017). More than 40% of the Keys' residents cannot afford even basic living expenses (e.g., food, healthcare, housing, transportation, child care; Filosa & Goodhue, 2019).

To cope with the low wages and the high cost of living, many working-class residents either move to places that are more affordable to live or work in multiple jobs. This is true even for those with white-collar jobs, according to Tom, a young Keys resident:

> Before the hurricane, Marathon High School hired a new principal from out of state. He came down here for [the] weekend … [and] looked around to try to find a place. And he's a principal so he should get paid more than anybody. And at the end of the weekend, he resigned—never having actually taken the job—because he couldn't find an affordable place for him and his family. That's how bad it is!

Tom also noted, for instance, that to eke out a living, he held three jobs, two of which were at a church whereas the third was at a government institution. Between his three jobs and his

wife's job, they were "not rich," but they could afford a decent life in the Keys. Sean, who had two grandchildren, drew attention to the challenges of parents who needed to work multiple jobs: "You need to be … in four jobs just to make a living. You know if you have young children …. There's no life! You're working all the time and never see your kids."

The Disaster and the Lack of Affordable Housing Problem

Prior studies have noted that disasters are likely to uncover and exacerbate existing, chronic issues in affected communities (Levine et al., 2007; Mayer et al., 2020). The existing challenges were exacerbated in the aftermath of Hurricane Irma, in part due to damages to the affordable housing stock and loss of jobs. Around 65% of the local leaders mentioned that disaster-related factors influenced residents' decisions to leave after the hurricane, specifically the disaster's impact on housing, businesses, and the overall well-being of the community; the financial and emotional cost of the rebuilding process; and the anxieties related to the next storm. Mary, who was involved in damage assessments and recovery activities, explained how the hurricane's impact on housing and the jobs forced people to move out of the Keys:

> The … tourism folks … were out of work. So, if you were a … charter boat captain and the boat was damaged, you might not work for months! And that's just enough for people to say, "you know, if I don't have an income, I can't live here."

Hurricane Irma indeed had a disproportionate impact on the most vulnerable populations. The most impacted areas within the county were the Middle and Lower Keys, especially Big Pine Key, Marathon, and Cudjoe Key (Monroe County Government, 2017a). The hardest-hit homes were mobile homes, manufactured homes, and recreational vehicles (RVs), which provide affordable housing to many low-income residents (Monroe County Government, 2018). When asked about the most important challenge after the hurricane, Sean explained how the hurricane made the crisis of a lack of affordable housing worse, especially for disadvantaged groups:

> Jobs went away because businesses were destroyed. Affordable housing was destroyed. So, in other words, our affordable housing crisis went into overdrive. It became much, much worse …. Let's face it! If you're rich, you're able to build better and higher and stuff like that. If you're living in a trailer, you can't! And you can't really improve your thing. And if you're living on a rickety old boat which can float, that's about it! You're just permanently anchored. Same thing!

Interviewees reported that in the aftermath of Hurricane Irma, even some homeowners relocated, in part, due to their frustrations regarding obtaining insurance payments and government assistance or with the bureaucratic red tape involved in rebuilding. Those who were trying to rebuild their houses through their insurance coverage expressed dissatisfaction with the process of communicating and negotiating with their insurance companies. Many suggested that they did not receive their full coverage or the amount needed to pay for a new home, despite the damage to their homes, or mentioned that the process to obtain their insurance claims was lengthy. Similar rebuilding challenges were prevalent among those who did not have insurance, those who applied for government assistance (e.g., from Federal Emergency Management Agency—FEMA), and those who sought help from nongovernmental organizations (e.g., Florida Keys Outreach Coalition, Salvation Army, Keys Strong).

John described the rebuilding challenges from both residents' and government's viewpoints:

> There was some help. It was minimal. It was FEMA coming in and maybe rebuilding a room or two of your house where you can roughly live in while you rebuilt the rest of it back … One of the great issues is that the need is immediate. When you lose fifteen hundred homes, the next day you need the programs. You need money to help those people …. Eighteen months later, the people who needed it worst, they're gone. They can't wait eighteen months! I chose to go ahead and rebuild the place that I lost. But I am able to do that because I'm an old guy who's been rather frugal and I've got a couple of bucks.

Alex, a church representative, added that homeowners were "giving up and selling off their property and moving away," because they could not deal with not only "the battle with insurance companies" and "with banks" but also battles with "the county" that was involved in the permitting process. Many struggled with the bureaucratic challenges to meet the county's building codes, which they found necessary but demanding. Those who had lived in mobile homes or ground-level homes before were required to replace their homes with resilient structures (e.g., elevated homes), which meant an additional financial burden for the residents. There were also long waiting times involved in the reconstruction process due to the limited number of government employees and contractors who were licensed to work in the area. An independent consultant, Tara, who worked with Monroe County, shared her insights on bureaucratic challenges, and on operational and insurance-related problems:

> There's always bureaucracy, you know, being able to get the right permits at the right time … so many people who have contacted the contractors and are just waiting for them to show up …. The people who can and do [do] the work have so much work to do that they can't get to everybody. So it's a matter of resources and … not everybody can afford it. They didn't get anything from FEMA or their insurance. So many people I know are still waiting for their insurance companies …. People didn't receive the kind of coverage [they expected to receive].

Interviewees also reported that many Keys residents relocated after the hurricane because they did not qualify for government assistance programs. These residents were typically not homeowners and had unique (and sometimes illegal) housing arrangements. Kelly explained the particular challenges faced by these residents:

> You've got a big house. And then whoever owns that house rents out four different places … , which is illegal … those four people that have been paying you money and live there, they have no lease. So they get no government help. They get no reimbursement. They have no insurance. So now all those people are homeless and that's kind of one of those things … people should know better—which is true! But that's what's popular here.

Any Role of the Rising Seas in Residents' Relocation?

Our findings show that local leaders were aware of risks associated with SLR. Making a connection to SLR, Sean likened the future of the Keys, in the absence of adequate government funding, to Stiltsville in Miami, the historical site of a collection of stilt houses on the edge of Biscayne Bay (see Miller, 2021, for details and pictures of Stiltsville):

> Keys are going to be under water in twenty, thirty, forty years. You know, there won't be any Keys. We're going to be Stiltsville. Have you heard of Stiltsville? The place off of … Key Biscayne …. There's a bunch of houses on pillars, and they're in the middle of water.

Also, according to a recent news report (South Florida Sun Sentinel, 2019), SLR awareness among Keys residents was increasing as the community experienced higher and longer king tides as well as rising flood insurance premiums.

The Comprehensive Plan (Monroe County Government, 2017b) mentions both SLR-related risks (Conservation and Coastal Management Action 1.3.3) and adaptation (Monroe County Government, 2017b, goal 101). At the same time, the plan states that the county may postpone actions related to climate change: "the science examining the impacts of climate change and sea level rise is still evolving and the County may want to consider postponing the acquisition priorities on this issue until a future date" (Monroe County Government, 2017b, Policy 102.4.2). Also, the Monroe County Comprehensive Emergency Management Plan does not mention climate-related risks in the Keys (Monroe County Government Emergency Management Department, 2017c).

Public-sector initiatives to address SLR-related risks (e.g., capital and infrastructure improvements in the form of elevation of public buildings or roads) also fell short in Monroe County. The interviewees reported that many of the roads, specifically those that remain at or below

sea level, can be inaccessible due to sunny-day flooding—temporary inundation that occasionally occurs in low-lying areas. Although the interviewed public officials recognized the limited nature of their SLR-related actions, they attributed this mainly to limited funding opportunities from upper levels of government and lack of enabling institutions—factors that were also highlighted by Flugman et al. (2012) and Mozumder et al. (2011).

The local leaders in the area were also in agreement with respect to a potential tug of war for land between the rich and the poor in the face of rising seas. These concerns represent a warning of the potential increase in existing inequalities (e.g., housing-related inequalities). When asked about the group of residents that would be impacted the most by SLR, Brendon, an elderly elected official, mentioned the likely unequal burden of SLR on the most disadvantaged residents:

> Certainly, [the] low-income group would be the most impacted because they tend to be the folks who live in properties that are of lesser value, and those lesser value properties tend to be in vulnerable places .... They're probably less likely to be elevated ....

Despite the acknowledgment of SLR as a long-term stress that will unequally burden some groups, community stakeholders perceived SLR to have little to no direct influence on residents' relocation decisions after Hurricane Irma—a shock. Among the interviewees, 75% disagreed or strongly disagreed that residents' decisions to relocate after Hurricane Irma were motivated by risks associated with SLR—a stress.

The Dread of Another Storm

In general, the post-Hurricane Irma period was not perceived as a window of opportunity that drew attention to SLR. More than SLR, the local leaders underlined the fear of experiencing another storm that contributed to relocations from the area. Interviewees stated that dealing with hurricane-related challenges (e.g., the financial and psychological stress of rebuilding) surpassed SLR-related concerns during relocation decision-making. Nearly 40% of the interviewees stated that residents relocated because they did not want to confront the challenges of future hurricanes. Compared to hurricanes, SLR was seen as a problem so far into the future that it was not necessary to consider immediately. Claire, a community leader who was working for a charitable organization during the recovery process, summarized the general perspective of the community: "I have not heard ... one person say 'I'm afraid of sea level rise, so I'm leaving' .... But I've heard a lot of people say, 'if another storm comes, I'm out of here.'"

As mentioned above, some residents had already experienced a psychologically stressful rebuilding process after Hurricane Irma. They simply were unwilling to undertake similar challenges again in the future. James, who had assisted people whose homes were damaged by the hurricane, shared his thoughts about residents' perspectives along with his own perspective:

> For some people it's like ... "I have to move because I lost everything" or "oh my God! I never want to go through that again!" I ... know some of the older people; they would go and say "I can't do this again." My wife and I, we actually had that discussion. If we have another hurricane like this in another ten years, I don't think we could handle it.

The Myopia: Emphasis on Short-Term Needs

We found myopia—a tendency to focus on the short term—in perceptions of future SLR risks in the Keys. Our interviewees viewed SLR as a fuzzy concept or a future concern rather than a concrete problem that needed to be addressed at present. The immediate concerns of people affected by disasters were their family members' short-term needs (e.g., food, shelter, and jobs) following a disaster, so SLR-related risks were perceived as playing a minor role in relocation decisions. Sean characterized myopia as follows:

> Nobody said, "oh well, you know, there's all this sea level rise" … the hurricane just kind of took over it …. You know, my hand is smaller than this room but if I … close … your eyes, you can't see anything else. Hurricane Irma was doing this …. You can't see the big picture because this thing is just right in your face.

Residents' focus on the short term is understandable, given the conditions people were experiencing at the time of our fieldwork, more than one year after the hurricane. Kelly, who had helped numerous disaster-impacted residents meet recovery needs (e.g., food, clothing, logistics), similarly noted the dire situations of some residents:

> I just had a lady in here a while ago who said …. She had a job. In the place where she had a job [they] let her go there and take a shower. They [people like her] go to Winn Dixie [a local supermarket]; they go to the gas stations for a bathroom. I mean, this is just like more information than I want to hear …. How do you live in your car? I can't even wrap my brain around that.

An Invisible and Distant Problem

Some of the local leaders noted that it was difficult to ignore SLR in the Keys. People who lived near the water, especially, could observe SLR and its impact on their properties firsthand. Some also mentioned neighborhoods that experience regular floods. Colin provided an example of one such neighborhood:

> When we get a bad rain [there are roads in that neighborhood] that are inundated. So we also don't have good drainage. All they need is a really good afternoon rain, and it's flooded. I don't know if you've seen pictures [referring to a recent newspaper report] …. People are on boats. People are walking. It is up to their knees. The sewer system does not work well there.

However, when asked about the influence of SLR on people's relocation decisions, the majority of the interviewees (75%) disagreed or strongly disagreed that SLR was a factor. Benjamin, a public official involved in long-term recovery activities, attributed this to the invisible and slowly-occurring nature of the problem, confirming the findings of previous studies (Harvatt et al., 2011):

> They're not seeing the impacts of SLR …. [They] won't see those effects for twenty years … I don't believe that SLR is affecting people's decisions right now. Hurricane Irma wasn't because of SLR. Hurricane Irma was because it was a hurricane … people aren't seeing the effects of SLR every day.

Surprisingly, our interviews revealed a certain degree of hesitance among public officials to educate the public on SLR through awareness campaigns. They underlined that educating the public could succeed only to a certain degree. According to the leaders, there will always be a subset of the population who are not motivated to learn. John explained his hesitance on this issue:

> I'm pretty cynical about how you get information to the public …. So you're talking to an old guy who has tried and tried and tried to educate the public and realized that there is a difference between providing an opportunity for education and educating. Providing the opportunity is the things you and I do. Becoming educated requires motivation on the part of the members of the public. There's a difference! It's kind of like the difference between the old saying "you can lead a horse to water but you can't make him drink."

The invisibility of the problem was related to the belief among residents that they might not be impacted in their lifetimes. Bethany expressed this perspective:

> I think most people remain in denial, and I believe that individuals do not feel it [SLR] will personally affect them. I believe people may feel it is beyond their lifetime. It's something that's going to happen far [in]to the future and not affect them today.

SLR is perceived as a time-sensitive problem that is invisible today but appears on the horizon, impacting communities in the far future.

The Nature of SLR is Not Well Understood

Compared to the hurricanes, long-term stresses and their impacts on residents (e.g., through higher home and flood insurance rates) were less well understood by residents. Keys residents know how to prepare for hurricanes every year. Yet they are not well equipped when it comes to SLR. In response to a question about why SLR had little to no effect on people's relocation decisions, Kelly explained the differences between hurricanes and SLR:

> I don't think as many people are educated on SLR. I think they're more educated on hurricanes. So, for example, we prepare for hurricanes, right? I mean this year they [the state] even offered like a tax-free week so that you [could] go get your hurricane supplies. And there's advertisements about hurricanes. And the media is talking about it. The public's talking about it .... You know, city forums talk about it. But nobody ever ties those things to SLR! Nobody ever talks about SLR! It's more of a hurricane and the effects of a hurricane.

The Political Divide

Some interviewees claimed that part of the community did not believe in SLR due to their politically conservative views and critical stance toward climate change science. Sean shared his insights on the controversial situation that emerges from typical conservative views of SLR:

> The wealthier people tend ... to sit in the Republican Party which is the party that is denying climate change. They are all the people who have the money and are building seawall in front of their homes. They're very well aware that it's happening but again they are taking care of their own.

Discussion and Conclusion

As the findings revealed, local leaders stated that the majority of the Keys residents returned to rebuild their houses after Hurricane Irma due to a strong attachment to place. Their decisions to rebuild were affected by their unique attachment to their community, as observed in previous studies (Jamali & Nejat, 2016; Morrice, 2013). Similar to other studies, we found that predisaster challenges, such as a lack of affordable housing (Levine et al., 2007; Mayer et al., 2020) and other economic problems (e.g., job-related problems; Cernea, 1997), were highly influential on relocation decisions in the eyes of local leaders. The risks associated with potential storms—shocks—played a large role in relocations as well.

Our findings showed that local leaders were aware of the potential future impacts of SLR, a stress. However, they perceived the risks associated with SLR to be largely absent in resident relocation decision-making. According to the local leaders, the fear of experiencing another storm and the focus on short-term needs (i.e., myopia; Meyer & Kunreuther, 2017) surpassed SLR-related risks in resident relocation decision-making. Furthermore, the leaders thought that the SLR problem is almost invisible to the residents, due to its gradual nature, as highlighted by the previous research (Harvatt et al., 2011). To local leaders, the residents perceived SLR as a distant problem—the impacts of which are uncertain. Some residents were less educated about and less well prepared for SLR in comparison to the hurricanes that threaten the islands every year. Others had politically conservative views of SLR due to their critical stance toward climate change science.

Based on the study's key findings on myopia, we argue that local leaders should work on raising SLR awareness in coastal communities prior to a disaster event, as they need public support to address this challenging problem. Studies (e.g., Zanocco et al. 2018) argue that stronger connections between stresses and shocks are established in the communities where climate change awareness is high in predisaster periods. These stronger connections are also attributed to political leaders who frame extreme events in the context of climate change. This underlines the critical role of leaders in drawing attention to long-term stresses.

It is important to note that acquiring a proactive perspective to address long-term stresses is constrained by the short-term focus of political decision-making processes. Policy actions typically have a short-term focus informed by economic development goals and re-election concerns. Even some comprehensive federal efforts (e.g., the Hazard Mitigation Grant Program; the Community Development Block Grant Program Disaster Recovery Fund) fail to ensure long-term resilience because they lack policy learning across housing recovery programs implemented in various locations (Greer & Brokopp Binder, 2017). They also fall short in addressing needs in rural communities (Seong et al., 2021). Addressing long-term environmental problems requires a major shift in policy focus toward a longer horizon, overarching current and future risks associated with these problems. This shift can be led by planning efforts that have the potential to address SLR-related risks in the long run. Even though this potential can be overlooked in a postshock environment, as we found in the review of local plans, long-term planning can be utilized as a tool to analyze climate change projections and incorporate them into regular actions.

We acknowledge that interviewing local leaders as key informants has limitations; such interviews do not capture the perspectives of residents themselves (i.e., those who decided to relocate or stay after Hurricane Irma (see Lokot [2020] for a critique of key informant interviews). The present study is the first step in examining the link between postdisaster relocation decisions and longer-term risks associated with SLR from local leaders' perspectives. We do not suggest that local leader perspectives fully represent the perspectives of Keys' residents or that the leaders' perspectives should be prioritized due to their status in the community. We acknowledge that local leaders might have biases surrounding the disaster and SLR. To address these potential biases, we triangulated findings from interviews with findings from other data collection methods (i.e., participant observation and reviews of secondary sources). We also acknowledge that the findings on rental properties and the needs of tenants in the disaster recovery process can be expanded by future studies. Hence, future research should collect data directly from the residents of disaster-affected communities (e.g., through surveys or interviews with both homeowners and tenants) to capture their lived experiences on the impact of SLR in their decision-making processes related to relocation and repopulation. There is also a need for longitudinal studies that examine the role of SLR risks associated with relocation/rebuilding decisions of residents of disaster-stricken communities over time.

A shock like a hurricane carries the potential to make the rather invisible impacts of long-term stresses like SLR more visible (Harvatt et al., 2011), offering "a window of opportunity" to make changes in these communities. Therefore, we suggest that local leaders find a delicate balance between addressing the short-term post-disaster needs of their communities and the long-term adverse SLR risks. Some strategies local leaders could use to convince the residents that SLR is real and might affect the coastal communities include: (a) making SLR more visible to residents on a continuing basis rather than only after shock events (e.g., through visual signs or environmentally engaged art; see Nedd [2019] for an example relating to South Florida); and (b) helping residents connect SLR to disasters (e.g., higher insurance rates). We suggest that the best time window in which to undertake these strategies is soon after addressing the immediate needs in the community, but while the collective memory of the disaster is still present.

Designing and implementing strategies to tackle SLR also need to account for the deeply rooted socioeconomic patterns (e.g., economic inequalities, racial disparities) that exist in U.S. communities. For example, failing to address the existing social dynamics of housing in climate change adaptation, as documented in another case study (Loughran & Elliott, 2022), will result in disproportionate benefits and risks experienced among different racial groups. Federal and state governments could play important roles in providing help to build more resilient coastal communities with a focus on social equity in environmental policymaking. They could enhance access to funding opportunities for SLR adaptation and mitigation and address the entrenched inequalities in income and housing, especially in economically fragile areas that are dependent on tourism.

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Notes on Contributors

Omur Damla Kuru is a PhD candidate in the Public Affairs Program at the Department of Public Policy and Administration at Florida International University, Miami, Florida. Her research interests include environmental policymaking, emergency management, resilience, and public participation.

N. Emel Ganapati is the director of the Laboratory for Social Science Research at the Extreme Events Institute and an associate professor of public policy and administration at Florida International University. Her research interests include postdisaster recovery and resilience and citizen participation/community empowerment.

Matthew Marr is an associate professor of sociology in the Department of Global & Sociocultural Studies at Florida International University. His research focuses on homelessness in the United States and Japan, showing how urban marginality is shaped by social conditions operating at multiple levels—ranging from global to the individual.

ORCID

Omur Damla Kuru http://orcid.org/0000-0002-9544-651X
N. Emel Ganapati http://orcid.org/0000-0003-0967-9593
Matthew Marr http://orcid.org/0000-0002-5184-8170

References

Axford, W. (2016, April 20). For a large number of Florida Keys firefighters, commute from the mainland is part of the job. *FL Keys News*. https://www.flkeysnews.com/news/article79625022.html

Bamber, J. L., Oppenheimer, M., Kopp, R. E., Aspinall, W. P., & Cooke, R. M. (2019). Ice sheet contributions to future sea-level rise from structured expert judgment. *Proceedings of the National Academy of Sciences of the United States of America*, *116*(23), 11195–11200. https://doi.org/10.1073/pnas.1817205116

Baumgard, J. (2017, September 5). Florida Keys to reopen to tourists on October 1. *Curbed Miami*. https://miami.curbed.com/2017/9/5/16257912/hurricane-irma-miami-florida.

Berke, P. R., & Campanella, T. J. (2006). Planning for post-disaster resiliency. *The Annals of the American Academy of Political and Social Science*, *604*(1), 192–207. https://doi.org/10.1177/0002716205285533

Berke, P. R., Kartez, J., & Wenger, D. (1993). Recovery after disaster: Achieving sustainable development, mitigation and equity. *Disasters*, *17* (2), 93–109. https://doi.org/10.1111/j.1467-7717.1993.tb01137.x

Birkland, T. A. (1997). *After disaster: Agenda setting, public policy, and focusing events*. Georgetown University Press.

Bisaro, A., de Bel, M., Hinkel, J., Kok, S., & Bouwer, L. M. (2020). Leveraging public adaptation finance through urban land reclamation: Cases from Germany, the Netherlands and the Maldives. *Climatic Change*, *160*(4), 671–689. https://doi.org/10.1007/s10584-019-02507-5

Botkin-Kowacki, E. (2019, March 1). Whose Key West? Climate change is driving up the price of paradise. *The Christian Science Monitor*. https://www.csmonitor.com/Environment/2019/0301/Whose-Key-West-Climate-change-is-driving-up-the-price-of-paradise

Bruggers, J. (2018, December 27). After back-to-back hurricanes, North Carolina Reconsiders Climate Change. *Inside Climate News. Politics & Policy*. https://insideclimatenews.org/news/27122018/hurricane-damage-north-carolina-climate-change-2018-year-review-florence-michael-matthew/

Burby, R. J. (2006). Hurricane Katrina and the paradoxes of government disaster policy: Bringing about wise governmental decisions for hazardous areas. *The Annals of the American Academy of Political and Social Science*, *604*(1), 171–191. https://doi.org/10.1177/0002716205284676

Buurman, J., & Babovic, V. (2016). Adaptation pathways and real options analysis: An approach to deep uncertainty in climate change adaptation policies. *Policy and Society*, *35*(2), 137–150. https://doi.org/10.1016/j.polsoc.2016.05.002

Catenacci, M., & Giupponi, C. (2013). Integrated assessment of sea-level rise adaptation strategies using a Bayesian decision network approach. *Environmental Modelling & Software*, *44*, 87–100. https://doi.org/10.1016/j.envsoft.2012.10.010

Cernea, M. (1997). The risks and reconstruction model for resettling displaced populations. *World Development*, *25*(10), 1569–1587. https://doi.org/10.1016/S0305-750X(97)00054-5

Charmaz, K. (2014). *Constructing grounded theory*. SAGE.

Clark, G. E., Moser, S. C., Ratick, S. J., Dow, K., Meyer, W. B., Emani, S., Jin, W., Kasperson, J. X., Kasperson, R. E., & Schwarz, H. E. (1998). Assessing the vulnerability of coastal communities to extreme storms: The case of Revere, MA., USA. *Mitigation and Adaptation Strategies for Global Change*, *3*(1), 59–82. https://doi.org/10.1023/A:1009609710795

Clarke, B., Tually, S., & Scott, M. (2016). Social networks and decision-making for coastal land-use planning, development and adaptation response. *Australian Journal of Maritime & Ocean Affairs*, *8*(2), 101–116. https://doi.org/10.1080/18366503.2016.1217378

Conch Republic. (n.d.). The Founding of the Conch Republic. Retrieved from: https://conchrepublic.com/our-founding-in-1982/

Data USA: Monroe County, Florida. (2018). Economy. https://datausa.io/profile/geo/monroe-county-fl#economy

Delamont, S. (1975). Participant observation and educational anthropology. *Research Intelligence*, *1*(1), 13–21. https://doi.org/10.1080/0141192750010103

Do, X. B. (2020). Return migration after the Fukushima Daiichi nuclear disaster: The impact of institutional and individual factors. *Disasters*, *44*(3), 569–595. https://doi.org/10.1111/disa.12381

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2001). Participant observation and fieldnotes. In P. Atkinson, A. Coffey, S. Delamont, J. Lofland & L. Lofland (eds.), *Handbook of ethnography* (pp. 352–368). SAGE. https://doi.org/10.4135/9781848608337.n24

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2011). *Writing ethnographic fieldnotes*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226206851.001.0001

Esnard, A. M. (2003). Beyond semantics and the immediate post-disaster period: Community quality of life as an overarching theme for sustaining collective action. *Natural Hazards Review*, *4*(3), 159–165. https://doi.org/10.1061/(ASCE)1527-6988(2003)4:3(159)

Filosa, G., Goodhue, D. (2019, February 06). Can workers afford to live in the Keys? More struggle to make it, a new report says. *Miami Herald*. https://www.miamiherald.com/news/local/community/florida-keys/article225594500.html

Florida County Maps. (2012). Monroe County, Florida [Visual-map]. http://www.floridacountiesmap.com/monroe_county.shtml

Florida Trend. (2016, March 14). Florida's January 2016 employment figures released. https://www.floridatrend.com/article/19691/floridas-january-2016-employment-figures-released

Flugman, E., Mozumder, P., & Randhir, T. (2012). Facilitating adaptation to global climate change: Perspectives from experts and decision makers serving the Florida Keys. *Climatic Change*, *112*(3–4), 1015–1035. https://doi.org/10.1007/s10584-011-0256-9

Flyvbjerg, B. (2006). Five misunderstandings about case study research. *Qualitative Inquiry*, *12*(2), 219–245. https://doi.org/10.1177/1077800405284363

Fussell, E., Sastry, N., & VanLandingham, M. (2010). Race, socioeconomic status, and return migration to New Orleans after Hurricane Katrina. *Population and Environment*, *31*(1-3), 20–42. https://doi.org/10.1007/s11111-009-0092-2

Ganapati, N. E. (2009). Rising from the rubble: Emergence of place-based social capital in Golcuk. *Turkey. International Journal of Mass Emergencies and Disasters*, *27*(2), 127–166.

Glickman, S. (2018, December 11). Climate change is here, and local leaders in Florida are leading the fight. *South Florida Sun Sentinel*. https://www.sun-sentinel.com/opinion/fl-op-com-florida-leads-climate-change-fight-glickman-12112018-story.html

Gold, R. L. (1958). Roles in sociological field observations. *Social Forces*, *36*(3), 217–223. https://doi.org/10.2307/2573808

Goodhue, D. (2018, September 13). 4 percent of Keys population has left since Irma. Businesses can't find enough workers. *Miami Herald*. Retrieved January 18, 2021, from https://www.miamiherald.com/news/local/community/florida-keys/article218341010.html#:~:text=Out%20of%20the%20Keys'%20incorporated,of%20Economic%20and%20Business%20Research.

Greer, A., Binder, S. B., Thiel, A., Jamali, M., & Nejat, A. (2020). Place attachment in disaster studies: Measurement and the case of the 2013 Moore tornado. *Population and Environment*, *41*(3), 306–329. https://doi.org/10.1007/s11111-019-00332-7

Greer, A., & Brokopp Binder, S. (2017). A historical assessment of home buyout policy: Are we learning or just failing? *Housing Policy Debate*, *27*(3), 372–392. https://doi.org/10.1080/10511482.2016.1245209
Greer, A., Brokopp Binder, S., & Zavar, E. (2021). From Hazard Mitigation to climate adaptation: A review of home buyout program literature. *Housing Policy Debate*, 32(1) 152–170. https://doi.org/10.1080/10511482.2021.1931930
Hamilton, L. C., Wake, C. P., Hartter, J., Safford, T. G., & Puchlopek, A. J. (2016). Flood realities, perceptions and the depth of divisions on climate. *Sociology*, *50*(5), 913–933. https://doi.org/10.1177/0038038516648547
Harvatt, J., Petts, J., & Chilvers, J. (2011). Understanding householder responses to natural hazards: Flooding and sea-level rise comparisons. *Journal of Risk Research*, *14*(1), 63–83. https://doi.org/10.1080/13669877.2010.503935
Hasnat, M. A., Chowdhury, M. A., & Abdullah-Al-Mamun, M. M. (2022). Perception of people on climate-induced migration issues in coastal areas of Bangladesh. *Migration and Development*, *11*(1), 142–162. https://doi.org/10.1080/21632324.2020.1742504
Hauer, M., Evans, J., & Mishra, D. (2016). Millions projected to be at risk from sea-level rise in the continental United States. *Nature Climate Change*, *6*(7), 691–695. https://doi.org/10.1038/nclimate2961
Hauer, M. E., Fussell, E., Mueller, V., Burkett, M., Call, M., Abel, K., McLeman, R., & Wrathall, D. (2020). Sea-level rise and human migration. *Nature Reviews Earth & Environment*, *1*(1), 28–39. https://doi.org/10.1038/s43017-019-0002-9
Hinkel, J., Aerts, J. C. J. H., Brown, S., Jiménez, J. A., Lincke, D., Nicholls, R. J., Scussolini, P., Sanchez-Arcilla, A., Vafeidis, A., & Addo, K. A. (2018). The ability of societies to adapt to twenty-first-century sea-level rise. *Nature Climate Change*, *8*(7), 570–578. https://doi.org/10.1038/s41558-018-0176-z
Hughes, J. D., & White, J. T. (2014). *Hydrologic conditions in urban Miami-Dade County, Florida, and the effect of groundwater pumpage and increased sea level on canal leakage and regional groundwater flow*. doi, 10. (Report No.Scientific Investigations Report 2014–5162).
IPCC. (2007). *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC.
Islam, M. R. (2018). Climate change, natural disasters and socioeconomic livelihood vulnerabilities: Migration decision among the Char land people in Bangladesh. *Social Indicators Research*, *136*(2), 575–593. https://doi.org/10.1007/s11205-017-1563-y
Izón, G. M., Hand, M. S., Mccollum, D. W., Thacher, J. A., & Berrens, R. P. (2016). Proximity to natural amenities: A seemingly unrelated hedonic regression model with spatial Durbin and spatial error processes. *Growth and Change*, *47*(4), 461–480. https://doi.org/10.1111/grow.12147
Jamali, M., & Nejat, A. (2016). Place attachment and disasters: Knowns and unknowns. *Journal of Emergency Management*, *14*(5), 349–364.
King, M. (2017). A tribe faces rising tides: The resettlement of Isle de Jean Charles. *LSU Journal of Energy Law & Resources*, *6*(1), 295–318.
Konisky, D. M., Hughes, L., & Kaylor, C. H. (2016). Extreme weather events and climate change concern. *Climatic Change*, *134*(4), 533–547. https://doi.org/10.1007/s10584-015-1555-3
Kopp, R. E., Gilmore, E. A., Little, C. M., Lorenzo-Trueba, J., Ramenzoni, V. C., & Sweet, W. V. (2019). Usable science for managing the risks of sea-level rise. *Earth's Future*, *7*(12), 1235–1269. https://doi.org/10.1029/2018EF001145
Landry, C. E., Bin, O., Hindsley, P., Whitehead, J. C., & Wilson, K. (2007). Going home: Evacuation-migration decisions of Hurricane Katrina survivors. *Southern Economic Journal*, *74*(2), 326–343. https://doi.org/10.1002/j.2325-8012.2007.tb00841.x
Lee, E. S. (1996). A theory of migration. *Demography*, *3* (1), 47–57. https://doi.org/10.2307/2060063
Levine, J. N., Esnard, A. M., & Sapat, A. (2007). Population displacement and housing dilemmas due to catastrophic disasters. *Journal of Planning Literature*, *22*(1), 3–15. https://doi.org/10.1177/0885412207302277
Lokot, M. (2020). Whose voices? Whose knowledge? A feminist analysis of the value of key informant interviews. *International Journal of Qualitative Methods*, *20*, 1609406920948775.
Loughran, K., & Elliott, J. R. (2022). Unequal retreats: How racial segregation shapes climate adaptation. *Housing Policy Debate*, 32(1), 1–19. https://doi.org/10.1080/10511482.2021.1931928
Lowe, J. S. (2012). Policy versus politics: Post-Hurricane Katrina lower-income housing restoration in Mississippi. *Housing Policy Debate*, *22*(1), 57–73. https://doi.org/10.1080/10511482.2011.624529
Maldonado, J. K. (2014). A multiple knowledge approach for adaptation to environmental change: Lessons learned from coastal Louisiana's tribal communities. *Journal of Political Ecology*, *21*(1), 61–82. https://doi.org/10.2458/v21i1.21125
Mandel, K. (2018, October 5). North Carolina voters are worried about climate change after Florence. *Think Progress*. https://thinkprogress.org/poll-north-carolina-voters-climate-change-florence-79ed3f59f78e/
Marquart-Pyatt, S. T., McCright, A. M., Dietz, T., & Dunlap, R. E. (2014). Politics eclipses climate extremes for climate change perceptions. *Global Environmental Change*, *29*, 246–257. https://doi.org/10.1016/j.gloenvcha.2014.10.004
Matthis, S. (2020, December 31). 2020 Keys Economy: Ppp, Unemployment, and Real Estate. *Keys Weekly*. https://keysweekly.com/42/2020-keys-economy-ppp-unemployment-and-real-estate/

Mayer, J., Moradi, S., Nejat, A., Ghosh, S., Cong, Z., & Liang, D. (2020). Drivers of post-disaster relocations: The case of Moore and Hattiesburg tornados. *International Journal of Disaster Risk Reduction*, *49*, 101643. https://doi.org/10.1016/j.ijdrr.2020.101643

McAdam, D. (2017). Social movement theory and the prospects for climate change activism in the United States. *Annual Review of Political Science*, *20*(1), 189–208. https://doi.org/10.1146/annurev-polisci-052615-025801

McDonald, R. I., Chai, H. Y., & Newell, B. R. (2015). Personal experience and the 'psychological distance' of climate change: An integrative review. *Journal of Environmental Psychology*, *44*, 109–118. https://doi.org/10.1016/j.jenvp.2015.10.003

McNamara, K. E., & Des Combes, H. J. (2015). Planning for community relocations due to climate change in Fiji. *International Journal of Disaster Risk Science*, *6*(3), 315–319. https://doi.org/10.1007/s13753-015-0065-2

Meltzer, R., & Schwartz, A. (2016). Housing affordability and health: Evidence from New York City. *Housing Policy Debate*, *26*(1), 80–104. https://doi.org/10.1080/10511482.2015.1020321

Meyer, R., & Kunreuther, H. (2017). *The ostrich paradox: Why we underprepare for disasters*. Wharton School Press.

Miller, L. (2021). Story of Stiltsville Trust. Stiltsville Trust Inc. http://stiltsvilletrust.org/pages/stiltsville_miami_fl_biscayne_bay.html

Monroe County Government. (2017a, November 26). Approximate damage assessment results. https://www.monroecounty-fl.gov/DocumentCenter/View/12459/Approximate-Damage-Assessment-Results?bidId=

Monroe County Government. (2017b, April). Year 2030 Comprehensive Plan Monroe County Florida (Version: September 17, 2020). https://library.municode.com/fl/monroe_county/codes/comprehensive_plan?nodeId=YE2030COPLMOCOFL

Monroe County Government. (2018). Hurricane Irma Recovery, R.V./Mobile/Manufactured Home Parks 2017 Placard Placement Status. https://www.monroecounty-fl.gov/726/Hurricane-Irma-Recovery

Monroe County Government. (2019). ROGO/NROGO Ordinances. Retrieved from http://www.monroecounty-fl.gov/186/ROGONROGO-System

Monroe County Government. (2020). Rental Affordable Housing Units, Monroe County 2020 Qualifying Income Limits. https://www.monroecounty-fl.gov/DocumentCenter/View/17697/2020-Rental-Limits

Monroe County Government. (2021). Board of Commissioners Council Meetings & Agendas. http://monroecountyfl.iqm2.com/citizens/default.aspx

Monroe County Government Emergency Management Department. (2017c, April). Comprehensive Emergency Management Plan

Montanaro, D. (2020, September 19). Poll: Climate becomes top priority for democrats; Trump struggles on race, COVID-19. *National Public Radio (NPR)*. https://www.npr.org/2020/09/19/914233038/poll-climate-becomes-top-priority-for-democrats-trump-struggles-on-race-covid-19

Morrice, S. (2013). Heartache and Hurricane Katrina: Recognising the influence of emotion in post-disaster return decisions. *Area*, *45*(1), 33–39. https://doi.org/10.1111/j.1475-4762.2012.01121.x

Moser, S. C. (2010). Communicating climate change: History, challenges, process and future directions. *WIREs Climate Change*, *1*(1), 31–53. https://doi.org/10.1002/wcc.11

Mozumder, P., Flugman, E., & Randhir, T. (2011). Adaptation behavior in the face of global climate change: Survey responses from experts and decision makers serving the Florida Keys. *Ocean & Coastal Management*, *54*(1), 37–44. https://doi.org/10.1016/j.ocecoaman.2010.10.008

Mulhall, A. (2003). In the field: Notes on observation in qualitative research. *Journal of Advanced Nursing*, *41*(3), 306–313. https://doi.org/10.1046/j.1365-2648.2003.02514.x

Myers, C. A., Slack, T., & Singelmann, J. (2008). Social vulnerability and migration in the wake of disaster: The case of Hurricanes Katrina and Rita. *Population and Environment*, *29*(6), 271–291. https://doi.org/10.1007/s11111-008-0072-y

Nedd, O. (2019, April 10). Point of view: Grassroots efforts to raise awareness of rising sea levels. *The Palm Beach Post*. https://www.palmbeachpost.com/opinion/20190410/point-of-view-grassroots-efforts-to-raise-awareness-of-rising-sea-levels

O'Hara, T. (2018, October 22). Keys population drops after Irma. Key West Citizen. https://keysnews.com/article/story/keys-population-drops-after-irma/

Oliver-Smith, A. and Hoffman, S. (Eds.). (1999). *The angry earth: Disaster in anthropological perspective*. Routledge.

Olshansky, R. B., Hopkins, L. D., & Johnson, L. A. (2012). Disaster and recovery: Processes compressed in time. *Natural Hazards Review*, *13*(3), 173–178. https://doi.org/10.1061/(ASCE)NH.1527-6996.0000077

Oppenheimer, M., Glavovic, B. C., Hinkel, J., van de Wal, R., Magnan, A. K., Abd-Elgawad, A., Cai, R., Cifuentes-Jara, M., DeConto, R. M., Ghosh, T., Hay, J., Isla, F., Marzeion, B., Meyssignac, B., & Sebesvari, Z. (2019). Sea level rise and implications for low-lying islands, coasts and communities. H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.), In *IPCC Special report on the ocean and cryosphere in a changing climate*. In press.

Park, J., Obeysekera, J., Irizarry, M., Barnes, J., Trimble, P., & Park-Said, W. (2011). Storm surge projections and implications for water management in South Florida. *Climatic Change*, *107*(1–2), 109–128. https://doi.org/10.1007/s10584-011-0079-8

Phillippi, J., & Lauderdale, J. (2018). A guide to field notes for qualitative research: Context and conversation. *Qualitative Health Research*, *28*(3), 381–388. https://doi.org/10.1177/1049732317697102

Ray, A., Hughes, L., Konisky, D. M., & Kaylor, C. (2017). Extreme weather exposure and support for climate change adaptation. *Global Environmental Change*, *46*, 104–113. https://doi.org/10.1016/j.gloenvcha.2017.07.002

Renn, O. (2011). The social amplification/attenuation of risk framework: Application to climate change. *Wires Climate Change*, *2*(2), 154–169. https://doi.org/10.1002/wcc.99

Robles, F., Mazzei, P. (2017, December 23). Parts of Puerto Rico Won't Have Power for 8 Months. What's the Holdup? *The New York Times*. https://www.nytimes.com/2017/12/23/us/puerto-rico-power-outage.html

Romieu, E., Welle, T., Schneiderbauer, S., Pelling, M., & Vinchon, C. (2010). Vulnerability assessment within climate change and natural hazard contexts: Revealing gaps and synergies through coastal applications. *Sustainability Science*, *5*(2), 159–170. https://doi.org/10.1007/s11625-010-0112-2

Sastry, N., & Gregory, J. (2014). The location of displaced New Orleans residents in the year after Hurricane Katrina. *Demography*, *51*(3), 753–775. https://doi.org/10.1007/s13524-014-0284-y

Seong, K., Losey, C., & Gu, D. (2021). Naturally resilient to natural Hazards? Urban–Rural Disparities in Hazard Mitigation Grant Program Assistance. *Housing Policy Debate*, *32*(1), 190–210. https://doi.org/10.1080/10511482.2021.1938172

Sisco, M. R., Bosetti, V., & Weber, E. U. (2017). When do extreme weather events generate attention to climate change? *Climatic Change*, *143*(1–2), 227–241. https://doi.org/10.1007/s10584-017-1984-2

South Florida Regional Planning Council. (2017). South Florida comprehensive economic development strategy report. https://sfregionalcouncil.org/wp-content/uploads/2015/09/SouthFloridaCEDS2012-17.pdf

South Florida Sun Sentinel (Editorial Board). (2019, December 9). From the Florida Keys, an urgent – and regional – cry for action on climate change. *South Florida Sun Sentinel* https://www.sun-sentinel.com/opinion/editorials/fl-op-edit-climate-change-florida-keys-20191209-6pgfnb6tsfakxlan3omhukfxti-story.html

Steinberg, P. E., & Chapman, T. E. (2009). Key West's Conch Republic: Building sovereignties of connection. *Political Geography*, *28*(5), 283–295. https://doi.org/10.1016/j.polgeo.2009.08.001

Tacoli, C. (2009). Crisis or adaptation? Migration and climate change in a context of high mobility. *Environment and Urbanization*, *21*(2), 513–525. https://doi.org/10.1177/0956247809342182

Taiban, S., Lin, H. N., & Ko, C. C. (2020). Disaster, relocation, and resilience: Recovery and adaptation of Karamemedesane in Lily Tribal Community after Typhoon Morakot, Taiwan. *Environmental Hazards*, *19*(2), 209–222. https://doi.org/10.1080/17477891.2019.1708234

Taleb, N. N. (2007). *The Black Swan: The impact of the highly probable*. Random House.

The Internal Displacement Monitoring Centre (IDMC). (2020). Global Report on Internal Displacement. https://www.internal-displacement.org/sites/default/files/publications/documents/2020-IDMC-GRID.pdf

U.S. Census Bureau Official Website. (2019a). Annual estimates of the Resident Population, July 1, 2019. https://data.census.gov/cedsci/table?q=population%20monroe%20county%20florida&tid=PEPPOP2019.PEPANNRES&hidePreview=false

U.S. Census Bureau Official Website. (2019b). Housing characteristics 5 year estimates (Table DP04). https://data.census.gov/cedsci/table?q=Median%20Gross%20Rent&g=0100000US_0400000US12_0500000US12086,12087&tid=ACSDP5Y2019.DP04&hidePreview=true

U.S. Census Bureau Official Website. (2019c). Population by age and sex, 2019 estimates (Table S0101). https://data.census.gov/cedsci/table?t=Populations%20and%20People&g=0100000US_0400000US12_0500000US12086,12087&tid=ACSST1Y2019.S0101&hidePreview=true

U.S. Census Bureau Official Website. (2019d). Income in the past 12 months, 5 year estimates (Table S1901). https://data.census.gov/cedsci/table?t=Income%20%28Households,%20Families,%20Individuals%29&g=0100000US_0400000US12_0500000US12086,12087&tid=ACSST5Y2019.S1901&hidePreview=true

U.S. Census Bureau Official Website. (2019e). Economic characteristics 5 year estimates (Table S2301). https://data.census.gov/cedsci/table?q=unemployment%20rate&g=0100000US_0400000US12_0500000US12086,12087&y=2019&tid=ACSST5Y2019.S2301

United Way of Florida. (2017). ALICE – Asset Limited, Income Constrained, Employed- Report. https://www.keysunitedway.org/sites/keysunitedway.org/files/17UW%20ALICE%20Report_FL%20Update_2.14.17_Lowres.pdf

Upadhyay, H., Kelman, I., G J, L., Mishra, A., Shreve, C., & Stojanov, R. (2015). Conceptualizing and contextualizing research and policy for links between climate change and migration. *International Journal of Climate Change Strategies and Management*, *7*(3), 394–417. https://doi.org/10.1108/IJCCSM-05-2014-0058

Wu, J. Y., & Lindell, M. K. (2004). Housing reconstruction after two major earthquakes: The 1994 Northridge earthquake in the United States and the 1999 Chi-chi earthquake in Taiwan. *Disasters*, *28* (1), 63–81. https://doi.org/10.1111/j.0361-3666.2004.00243.x

Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage publications.

Zanocco, C., Boudet, H., Nilson, R., Satein, H., Whitley, H., & Flora, J. (2018). Place, proximity, and perceived harm: Extreme weather events and views about climate change. *Climatic Change*, *149*(3–4), 349–365. https://doi.org/10.1007/s10584-018-2251-x

Zhang, K., Dittmar, J., Ross, M., & Bergh, C. (2011). Assessment of sea level rise impacts on human population and real property in the Florida Keys. *Climatic Change*, *107*(1–2), 129–146. https://doi.org/10.1007/s10584-011-0080-2