



# Roles of Nonprofits in Disaster Response and Recovery: Adaptations to Shifting Disaster Patterns in the Context of Climate Change

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**Abstract:** Nonprofit social service organizations play key roles in disaster response and recovery efforts targeting socially vulnerable populations, particularly in the United States. Increasingly frequent and intense disasters associated with climate change may raise new challenges for nonprofits. Yet little research has explored how changing disaster patterns may impact the roles of nonprofits. With this in mind, we examine the case of Tallahassee, Florida, which experienced a 3-year surge in tropical storm activity from 2016 to 2018. Based on interviews with nonprofit staff, supplemented by document analysis and participant observation, we explore how nonprofits experienced and adapted to this intensification of storm activity. We find that nonprofits that had formerly been peripheral to disaster work—such as homeless shelters and case management agencies—took on new responsibilities during this period but struggled to gain recognition as key actors. The authors develop a four-part scheme for classifying the roles of nonprofits and apply this scheme in interpreting the diverse experiences and adaptation strategies of nonprofit social service organizations. There is a need to more fully integrate some classes of nonprofits that have not traditionally been seen as key actors in disaster systems. DOI: [10.1061/\(ASCE\)NH.1527-6996.0000559](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000559). © 2022 American Society of Civil Engineers.

## Introduction

Global climate change is likely to alter the frequency or intensity of some natural disaster events, including droughts (Dai 2011), extreme precipitation events (Lehmann et al. 2015), wildfires (Liu et al. 2010), earthquakes (McGuire 2013), floods (Mousavi et al. 2011), and tropical storms (Knutson et al. 2010). Regional variations in these changes are difficult to predict, leading to levels of uncertainty in long-term disaster preparation (Keller and DeVecchio 2015; Rummukainen 2012). Such variation notwithstanding, changes in the patterning of major atmospheric and geo-physical events will undoubtedly have far-reaching human impacts (Berlemann and Steinhardt 2017; Haines et al. 2006), which are expected to disproportionately affect the most socially vulnerable populations (Mason and Rigg 2019). In this context, nonprofit organizations that serve these populations may be called upon to expand their roles in disaster response and recovery.

This article explores the potential impacts of increasingly frequent and intense disasters on nonprofit social service providers. We examine the case of a rapid increase in tropical storm activity during a 3-year period in Tallahassee, Florida, asking what challenges Tallahassee nonprofit social service organizations faced, what roles they played in disaster response and recovery, and how they responded and adapted. This case offers valuable insights and lessons for regions facing likely increases in disaster activity due to climate change. We develop a four-part scheme for classifying the roles that nonprofits played in disaster response and recovery and employ this scheme in interpreting the diverse experiences and responses of nonprofits during increased storm activity. Findings suggest a need for greater integration of some types of nonprofits that have heretofore been considered peripheral actors in disaster response.

## Literature Review: Roles of Nonprofit Organizations in Disaster Response and Recovery

Nonprofit social service organizations (NSSOs) play key roles in disaster response and recovery (Jenkins et al. 2015; Kapucu et al. 2018; Simo and Bies 2007). Often used synonymously with non-governmental organization (NGO) in the United States, *nonprofits* denote private organizations that work for a social mission rather than for financial gain. Among nonprofits, NSSOs provide services aimed at promoting social welfare and typically work with low-resource and socially marginalized populations. These same populations have high social vulnerability to disasters (Fothergill and Peek 2004; Smiley et al. 2018) and, thus, often have relatively high reliance upon disaster relief and recovery services, such as emergency shelter or financial support services (Bolin 1993; Zakour and Harrell 2004). While NSSOs often have fewer resources than government agencies, their knowledge of local conditions may make them adept at matching existing resources to community needs (Drennan and Morrissey 2019; Pipa 2006).

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Disaster management is not a primary mission of most social service organizations, but the circumstances of disaster events can push organizations into response and recovery work (De Vita 2006; Flatt and Stys 2013; Simo and Bies 2007). During disasters, nonprofits are often flexible and adapt to meet the increased needs of the communities they serve (Kapucu 2006; Rivera and Nickels 2014; Smith 2012). In addition, nonprofits' charitable missions may lead them into humanitarian work with new populations in the aftermath of a disaster (Pipa 2006; Smith 2012). In some cases, new nonprofits have emerged specifically to meet the needs brought on by a disaster (Hutton 2019; Simo and Bies 2007).

In the United States, federal disaster management policy delegates key roles to NSSOs (McCurry 2009; Olson 2012). Since 1900, the American Red Cross (ARC), a national nonprofit with regional chapters throughout the United States, has been mandated by Congress to provide emergency relief services (OLRC 2014). Today, FEMA in the US designates three national organizations to aid with national emergency response efforts: ARC, the National Voluntary Organizations Active in Disaster (NVOAD), and the National Association of Exploited and Missing Children (DHS 2019). NVOAD is an association of 104 member organizations that coordinates disaster management among nonprofits, particularly via state-level and county-level VOAD chapters (FEMA 2016). Moreover, FEMA emphasizes that disaster response starts and ends locally (FEMA 2016; DHS 2019), a position that assumes involvement from a broad range of local NSSOs beyond those officially listed in policy documents [see also Flatt and Stys (2013)]. Similarly, the National Disaster Recovery Framework takes a whole-community, as opposed to government-centric, approach that includes expectations for NSSO involvement (O'Donovan 2015).

NSSOs' strengths in disaster response are highly dependent upon their access to resources and ability to collaborate (McCurry 2009; Olson 2012; Pena et al. 2014). Often funded by donations and government grants, nonprofits must constantly strike a balance between securing funding and providing services (Gazley and Bradney 2007; Smith 2012). In the United States, for example, the ARC mandate has no designated federal funding stream; it relies on targeted donation drives as well as state and federal government contracts to fulfill its charter obligations (OLRC 2014). While natural disasters have been shown to increase charitable giving from nonimpacted communities in the US (Berrebi et al. 2021), increased disaster frequency may temper this effect by impacting more communities and inducing so-called donor fatigue (Alexander 2006; Eckel et al. 2007; but see Feeny and Clarke 2007). In addition, employees of local NSSOs may be displaced or otherwise impacted by the disasters that strike the communities they serve (Pipa 2006). Organizations may struggle with staff shortages that make it difficult or impossible to keep up with the increased volume and changing needs of their clients (Jenkins et al. 2015; Pollock et al. 2019). Likewise, limitations in funding and staff or volunteer time can also hinder preparation for disaster events (Chikoto-Schultz et al. 2018).

In the face of such challenges, NSSOs responding to disasters often seek to form partnerships with other nonprofits, businesses, and government agencies (Kapucu et al. 2018; Pena et al. 2014). In collaboration with government agencies, NSSOs offer resources, staff, training, and mobility (McCurry 2009). Such collaboration works well when there is communication, commitment to collaborate, organizational flexibility, and preexisting and continuous partnerships (Comfort and Kapucu 2006; Curnin and O'Hara 2019; De Vita 2006; Eller et al. 2018; Kapucu et al. 2018; Pollock et al. 2019). In addition, collaboration during nondisaster periods may contribute to interorganizational trust (Simo and Bies 2007), which can increase the efficiency of disaster response

collaborations (Kapucu 2005) and crisis response coordination (Moynihan 2009). Partnerships that persist postdisaster can increase community resilience if another disaster strikes (Jenkins et al. 2015; Pollock et al. 2019).

NSSOs are diverse in size, mission, and scope of services, and their roles in disaster response and recovery collaborations are highly variable (Robinson and Murphy 2013). This variability is apparent in qualitative and network analysis studies of nonprofit involvement in disaster systems (e.g., Hutton 2018; Kapucu et al. 2018; Simo and Bies 2007). Yet few attempts have been made to classify this diversity, with most studies focusing on nonprofits as one kind of responder within broader cross-sectoral collaborations. Bradney and Gazley (2009) recommended that emergency managers group nonprofit responders into three tiers: primary responders are routinely involved in emergency planning and response, secondary responders provide services to affected populations on a non-routine basis, and tertiary responders serve large populations that might be affected by disasters (e.g., libraries, museums). More generally, some scholars employ a loose distinction between large, national-level nonprofits and smaller organizations with more localized missions (Kapucu et al. 2018; Sledge and Thomas 2019). Yet a more systematic taxonomy of the diversity of NSSO roles could be valuable to understanding cross-sectoral collaborations in disaster management systems.

With global climate change, increasingly frequent and intense disasters (Holland 2012; O'Brien et al. 2006; Wisner 2010) will raise challenges for existing response and recovery systems. Given the current roles of NSSOs in these systems, particularly in the US, one might expect changing disaster patterns to spur increased engagement of NSSOs in disaster response and recovery. However, there is little scholarship to date on this topic. This exploratory case study tests the broad hypothesis that intensification of disaster activity will lead to expanded roles and responsibilities for NSSOs. More specifically, the study offers an initial exploration of the range of ways NSSOs may experience and respond to such an intensification. It seeks to answer four research questions:

*RQ1:* What range of roles do nonprofits play during an intensification of disaster activity?

*RQ2:* What challenges might nonprofits experience in enacting these roles?

*RQ3:* How might nonprofits adapt to meet these challenges?

*RQ4:* What barriers might hinder successful adaptation?

In addressing these questions, the authors draw on the disaster resilience of place (DROP) model of resilience (Cutter et al. 2008), which distinguishes between *inherent resilience*, or the preexisting capacity to "bounce back," and *adaptive resilience*, or the capacity to learn and change after a disaster event (Cutter 2016). In this context, the second research question inquires about the existing capacity of nonprofits to contribute to community resilience prior to a disaster's intensification, while the third and fourth questions explore their capacity to change and take on new responsibilities. Simultaneously, the first research question builds upon existing accounts of heterogeneity in NSSO roles by assessing the range of roles played during a period of disaster intensification.

## Methods

### Case Description

To address these research questions, this study employed an exploratory qualitative case study method, using one relatively extreme case of an increasingly common phenomenon (an increase in disaster activity) to explore an aspect of that phenomenon that has not

received much scholarly attention (experiences and responses of nonprofit organizations) (Flybjerg 2006; Yin 2014). We examined the case of nonprofits in Tallahassee, a small city in northwest Florida. Since 1851, the city has experienced tropical storms an average of once every 3.5 years, usually with only minor effects because of its inland location (FSU Emergency Management 2018). As a result, Tallahassee and the surrounding so-called Big Bend region have been considered safer from storm activity than other regions in Florida. However, major storms struck the Big Bend region each year from 2016 to 2018 (Hermine in 2016, Irma in 2017, and Michael in 2018). While this study makes no claim about the cause of this increase in major storms, the increase is consistent with expectations for shifting disaster patterns in the region associated with global climate change (Elsner 2006).

As the state capital, Tallahassee has a high concentration of nonprofits. The nongovernmental, nonprofit sector employs over 3,000 people and has a collective budget of \$300 million (Hoopes et al. 2020; UPHS 2020). Local demand for services is also high, with 43% of Tallahassee households categorized as income constrained and longstanding racial and economic segregation (Florida and Melladner 2015; Hare 2006; Hoopes et al. 2020). Many organizations are forced to make tough decisions about how best to allocate funding amidst rising costs and waning support at the local, state, and federal levels. Thus, this case offers ample opportunity to explore how disaster events may challenge a nonprofit sector already characterized by chronic resource scarcity.

### Data Collection and Analysis

Data collection methods consisted primarily of interviews, supplemented by gathering key organizational documents and conducting participant observation. The primary data come from 14 in-depth, semistructured interviews conducted with directors and other high-level managerial staff at NSSOs ( $N = 12$ ) and government disaster management agencies ( $N = 2$ ) in Tallahassee. Table 1 lists the nonprofit organizations and describes the disaster-related services they provide. To ensure interviewee anonymity, pseudonyms have been used for local organizations. The names of national organizations, such as ARC, have been retained to facilitate comparison with existing research. Researchers enriched the interview data by collecting documents relevant to the findings, such as organizational disaster protocols, and conducting walk-through observation at organization facilities as well as participant observation in meetings of local disaster management officials. Interviewees were recruited through a purposive sampling process with the aim of capturing maximum variation (not representativeness) of the modes in which NSSOs engage in disaster response and recovery (Gentles et al.

2015; Palinkas et al. 2015). To be included, interviewees had to have held a managerial position for the past 3 years (i.e., during the successive storms) in a nonprofit organization or government agency involved in response or recovery. Beginning with interviews at local government agencies and ARC, researchers used existing knowledge of the nonprofit sector, supplemented by snowball sampling, to locate participants whose roles and perspectives seemed likely to differ from those interviewed thus far. This included recruiting participants whose organizations differed in size, type (e.g., community action agencies, faith-based organizations), and mission (e.g., behavioral health, food, youth, older adults, housing). Because the range of variation in NSSO roles was unknown, saturation was used as an indicator of evidentiary adequacy (Padgett 2017).

Data analysis was an iterative, multiphase process that began during data collection and informed both data collection and coding procedures (Hennink et al. 2020). For example, after the first two interviewees noted a general reluctance to openly discuss climate change in professional settings, questions were designed to test this observation in later interviews. Thus, multiple phases of induction and deduction served to uncover and test patterns in the data (Reichertz 2014). Similarly, coding and analysis of the interviews were conducted via a cyclical process that tested emergent interpretations across the multiple data sources and the diverse disciplinary perspectives of the research team (Cornish et al. 2014; Roulston 2014). Coding moved between induction and deduction in several steps. First, Authors 1 and 2 used ELAN annotation software to mark key themes in the audio recordings of several interviews. Initial codes followed the structure of the interview protocol, which included questions about experiences of each hurricane, perceived challenges, intraorganizational changes, resource flows, interorganizational relationships, and lessons learned. Authors 1 and 2 also used Nvivo12 to apply, refine, and supplement these codes, with the researchers reviewing each other's work and engaging in frequent discussions to improve reliability and reduce biases and oversights. Second, Authors 1 and 2 summarized the findings for each code. Third, Authors 3 and 4 reviewed the coded data and summaries and offered critical comments and suggestions from their fields of expertise in infrastructure engineering and nonprofit management, respectively. Finally, the findings were revised to address the issues raised by Authors 3 and 4. Supplementary data offered contextual information that enriched this interpretive process. Following analysis, we presented the results to a focus group of representatives from participating organizations and used their feedback to check and refine our analysis (Lincoln and Guba 1985).

**Table 1.** Interviewed nonprofit social service organizations classified by role in disaster response and recovery during 2016–2018 hurricanes

Organization	Disaster-related services	Classification	COAD membership
Feeding Big Bend	Food and other resources	Response-focused	Yes
American Red Cross Tallahassee	Shelter and emergency aid	Response-focused	Yes
Salvation Army Tallahassee	Food and other resources	Response-focused	Yes
Housing 4 All	Housing	Response-active	Yes
Senior Life Services	Food and other services	Response-active	Yes
Tallahassee 211	Hotline offering information about social service resources	Response-active	Yes
Catholic Charities Northwest Florida	Case management, resource distribution	Response-active	Yes
Youth Housing and Services	Housing, case management for youth	Response-active	No
Sunrise Tallahassee	Housing as part of behavioral health services	Response-active	No
Big Bend Legal Aid	Legal assistance	Recovery	Yes
Good Samaritan Services	Case management, financial assistance	Recovery	No
Community Action Agency of Tallahassee	Food, case management, other resources	Recovery	Yes
Tallahassee Center for Girls	N/A	Nonengaged	No

## Findings

### Diverse Roles of NSSOs in Disaster Response and Recovery (RQ1)

In seeking to understand the diverse roles of nonprofits, we developed a four-part classification scheme based on how staff described the roles that their organizations played during the three previously mentioned storms (Table 1). For *response-focused* nonprofits, disaster response and recovery were central to their mission. *Response-active* nonprofits did not have disaster work in their core missions but were nonetheless active during the immediate disaster response because of the services they provide—for example, in this study, homeless shelters also served as storm shelters for their clients, and Tallahassee 211, a hotline for social services, fielded calls from impacted residents. *Recovery* nonprofits were inactive during disaster response but important to longer-term recovery efforts, providing services such as case management and legal aid. *Nonengaged* nonprofits were inactive during the immediate response period, and recovery efforts are outside the scope of their work (e.g., a youth center offering educational and recreational programming for girls). Nonengaged NSSOs were not included in this study.

An organization's categorization in one disaster was not necessarily predictive of its categorization in other disasters. Due to the flexibility of some organizations in responding to community needs, organizations could at times shift between categories. For example, Feeding Big Bend (the central food bank for the region) had not considered disaster response central to its mission prior to Hermine (2016), but the organization revised its mission during the ensuing years. In other cases, organizations could arguably fit into different categories depending on the storm. For example, Catholic Charities Northwest Florida and Senior Life Services functioned primarily as recovery nonprofits during Hermine and Irma, but they took on a response-active role during Michael (2018). Because experiences of Michael featured prominently in our interviews, we classified both of these organizations by their functions during Michael.

In our presentation of findings to participating organizations, participants found the four-part scheme valuable for making sense of their roles in disaster work. For example, one participant, reflecting on the complexity of interorganizational networks, stated, "I love the four categories that you have because it helps me frame exactly what the function [of each organization] is." More broadly, as the findings below demonstrate, this classification scheme proved valuable to interpreting the different experiences, challenges, and adaptation strategies of NSSOs. In official disaster management systems, NSSOs may often be lumped together—for example, 9 of 12 organizations included in this study were officially members of the county-level network Community Organizations Active in a Disaster (COAD, which in this case was used interchangeably with VOAD). Yet most of the insights from our interviews pertain to the differences across the four classes—including differences in COAD participation. As such, a central finding of this study is the relevance of this classification scheme to understanding diverse NSSO experiences and adaptation strategies during an intensification of disasters.

### Limited Perceived Role in Addressing Climate Change (RQ1)

A related finding pertains to the roles of NSSOs in addressing the root causes of changing disaster patterns. Across all classes, NSSO staff saw the three storms as portending a so-called new normal for the region, and all but one interviewee readily attributed this shift to

global climate change. However, despite this seeming consensus about the root cause of recent disaster events, most interviewees did not see an explicit focus on climate change as centrally relevant to their disaster work. Some interviewees made a distinction between their personal views about climate change and their professional roles as social service providers. For example, a managerial staff member at Tallahassee 211 said he talked about the issue frequently with friends and family, yet reported not discussing it with other staff because it was outside "the scope of our services." Others saw climate change as a "political" or controversial subject that might raise challenges for collaboration. For example, a staff member at Housing 4 All (H4A) worried that climate change could be a "buzz word [that] turns people off from looking at a problem." She explained that people recognized the trend in storms and collaborated in disaster preparation, but "the more politicized component of that conversation is left out entirely."

Thus, even as NSSOs took on new roles and responsibilities in addressing what they interpreted as the impacts of climate change, they did not necessarily see their organizations as having a role to play in addressing this root cause. In some cases, they saw talk of climate change as incompatible with their disaster work. This represents one possible limit to the hypothesis that intensifying disasters will lead to expanded roles for NSSOs.

### Challenges Experienced Varied by Class (RQ2)

While all NSSOs studied had undertaken disaster preparation prior to 2016, all also reported unanticipated challenges during the three successive hurricanes in the period 2016–2018. Staff at NSSOs in each class described these challenges differently. These differences can be usefully conceptualized in terms of the distinction between inherent resilience and adaptive resilience (Cutter et al. 2008). Response-focused organizations were relatively well prepared compared to response-active and recovery organizations, broadly demonstrating higher inherent resilience. Over the 3-year period, response-active and recovery organizations demonstrated adaptive resilience by improving their preparation protocols and staffing policies.

Staff at response-active and recovery organizations described the first storm, Hermine, as a learning experience that revealed weaknesses in their preparation protocols. A Category 1 storm that caused extensive electrical outages, Hermine had uneven effects depending on facility location. Of the six response-active and recovery NSSOs impacted, all described how Hermine helped them understand how to respond to client needs in a disaster, particularly when their facilities lacked power. One response-active NSSO director explained, "At the end of Hermine, we were lucky enough that we were like, 'Wow, that went as smoothly as we could have hoped for. But, boy, would it have been better had we just had a plan in place.' So, that was kind of the precipice for us to [start] putting things down on paper." Such lessons led these NSSOs to fortify their facilities, primarily by clearing trees; pursue new resources, such as generators; and alter staffing policy to clarify roles and responsibilities during major storms, particularly in the event of power outages.

For the three response-focused NSSOs, the challenges of Hermine were less unexpected or overwhelming. For example, because the regional chapter of ARC had been regularly involved in supporting other chapters in previous years, it was relatively well prepared for Hermine. A partial exception, however, was Feeding Big Bend, which largely followed its existing protocols but was spurred by Hermine to make disaster response more central to its mission [see subsequent section "Adapting to New Responsibilities (RQ3)"]. Across all three organizations, however, integration with

networks of parallel NSSOs in other regions was crucial to their relatively high degree of inherent resilience. For example, as part of the Feeding America network, Feeding Big Bend sent food and staff to assist Louisiana food banks in August 2016. When Hermine hit Tallahassee a few weeks later, these same Louisiana NSSOs sent assistance to Feeding Big Bend. Interviewees described such geographically dispersed networks as conduits for resources and knowledge, both of which bolstered the inherent resilience of response-focused organizations.

However, the same resource-sharing networks that bolstered inherent resilience during Hermine led to challenges for ARC and other response-focused NSSOs during Hurricane Irma the following year. Predictions of Irma's path varied greatly prior to landfall, and it eventually traveled up much of the length of the Florida peninsula. Evacuees traveled north in large numbers, with many seeking shelter in Tallahassee. In some cases, response-active and recovery organizations described increased caseloads from these migrations, but they generally experienced less strain than in Hermine or Michael. For some response-focused organizations, however, their responsibilities to their statewide networks led to increased strain. The regional chapters of ARC and Salvation Army, which had sent their resources to other areas of the state in preparation for the storm, found that they needed these resources for sheltering and feeding these evacuees. A staff member at Salvation Army described the situation: "All of a sudden we had a shelter explosion here . . . I had already agreed with the Red Cross to do 8,000 meals for them . . . But with the explosion, we were asked to up that amount to 22,000 meals." Staff at these NSSOs noted the need for better coordination across their resource-sharing networks to better adjust to the shifting paths of major storms. Thus, while the experience of Irma did not change interviewees' estimation of the value of such networks, it did stimulate them to reconsider how they are deployed.

Across all 3 classes active in response and recovery, most (11 of 12) interviewees described Hurricane Michael (2018) as the most challenging of the 3 storms. Michael made landfall about 100 km (60 mi) west of Tallahassee as a Category 5 hurricane. While the city itself did not bear the brunt of Michael, 11 of the 12 NSSOs participating in the study also serve the broader region, including rural areas devastated by storm surge and wind. As in Hermine and Irma, the challenges for response-focused NSSOs differed from the challenges for response-active and recovery NSSOs. All three response-focused NSSOs described taking on similar responsibilities and employing essentially the same procedures as in earlier hurricanes, but two said Michael had strained their resources to a higher degree. While this was partly due to the extent of impact, two of three interviewees also attributed the higher strain on resources to a lack of donor contributions. The interviewee at ARC explained, "Michael hit an area that not everybody and their brother knows about. I mean it's called the Forgotten Coast for a reason. So, because it hit more of the rural areas and the more unknown areas . . . we didn't bring in as much money." Similarly, but employing a somewhat different logic, the interviewee at Feeding Big Bend attributed the relative lack of philanthropy for Michael to donor fatigue from Irma the prior year. Thus, while the experience and preparation of response-focused NSSOs served them well in Michael, the storm highlighted how their reliance on philanthropy could limit their inherent resilience.

While some response-active and recovery organizations (3 of 9) were able to apply lessons and adaptations from the 2 previous storms to Hurricane Michael, most (8 of 9) described Michael as the most challenging of the three. Response-active organizations, such as homeless shelters, struggled to attain the resources needed to meet the additional needs of their clients. Similarly, recovery

NSSOs experienced a rise in the number of clients requesting services, which stretched their capacity to adequately serve clients. For example, at Good Samaritan Services, a small, faith-based nonprofit that offers case management for low-income populations, the surge in new cases temporarily overwhelmed the limited number of case management staff. Likewise, Community Action Agency of Tallahassee, which participated in the distribution of disaster aid after Michael, reported an approximately 30% increase in clients, which strained personnel and financial resources.

As they worked to meet increased client needs, staffing was a major challenge for response-active NSSOs. Here again, this was in contrast to the experience of response-focused nonprofits, which had relatively well-honed and clearly codified policies for accommodating staff and volunteer needs during the increased strain of disaster response. Despite increased client loads, recovery NSSOs faced few dilemmas about staffing policy because they did not function during the disaster and immediate aftermath. For response-active organizations, however, the experience of the hurricanes highlighted the need for a clear plan on how to care for their staff. Of the three response-active organizations significantly impacted by Hermine, two reported that Hermine led to changes in staffing policies that improved their response in Michael. For the three response-active NSSOs less impacted by Hermine, however, all reported that Michael introduced novel staffing challenges. Interviewees described responding to these challenges by clarifying policy on matters such as shift lengths during disaster response, sleeping during extended shifts, and exemptions from disaster shifts in order to care for children or adults with special needs. Thus, as in other areas, challenges with staffing during the 3-year storm surge revealed limits to response-active NSSOs' inherent resilience but in some cases also revealed their capacity for adaptive resilience.

### ***Adapting to New Responsibilities (RQ3)***

In responding to the challenges posed by the three hurricanes, many organizations adapted to take on new responsibilities, but this pattern was far stronger for response-active and recovery nonprofits than for response-focused nonprofits. For the most part, all three response-focused organizations continued in their existing roles with relatively minor adaptations to meet the increased need for their services. For example, due to the resource allocation challenges during Irma described earlier, the local chapter of the Salvation Army was more actively involved in coordinating food aid during this storm, a task normally managed at the state level. In a partial contrast, the Feeding Big Bend food bank made substantial updates to its policies and mission in response to the 3-year spike in storm activity, effectively shifting from response-active to response-focused status (see the earlier section "Diverse Roles of NSSOs"). Yet Feeding Big Bend's role as a key coordinator of food aid was consistent throughout the three storms. A staff member described the change in their mission as a more explicit affirmation of their existing roles in disaster response rather than a shift to a new role: "[Disaster response] was part of our mission maybe peripherally," he explained, "but because it was part of our mission peripherally it's now become an integral part of what we do."

For response-active and recovery NSSOs, by contrast, the surge in storm activity brought new responsibilities that were substantially different from their usual range of services. During Michael in particular, two NSSOs that were formerly primarily involved with long-term recovery became crucial actors during the immediate response period. Catholic Charities, for example, had primarily offered case management services to those impacted by previous

storms, including Hermine and Irma. However, because of Catholic Charities' strong presence in the region most heavily impacted by Michael, the organization's staff were some of the first on the ground after the hurricane passed, and they took a central role in distributing food aid and other resources in the ensuing days. Likewise, because some of Senior Life Services' clients experienced significant roof damage in Michael, the agency used limited donor funds to purchase and distribute tarps.

Even as response-active and recovery organizations took on new responsibilities, they did so by building on their existing strengths. Staff described this as a process of translating "blue sky" processes—that is, their everyday operations during nondisaster times—to meet "gray sky" needs. In the most concrete sense this might simply mean adapting their services and facilities to continue operations through the storms. For example, the interviewee at Housing 4 All explained how her organization's experiences with crisis positioned it well to effectively adapt and respond to clients' needs in disaster: "Our job is essentially—just in general—is managing crisis. Everyone that we are serving is usually in some stage of crisis. So, that's primarily just what we do is manage crisis." This statement is consistent with existing research on homeless shelters in disaster (Vickery 2015), but it can also be applied more broadly to the experiences of response-active and recovery NSSOs in adapting to new roles in disasters. Their experience managing the daily, chronic crises of clients positioned them well to be agile and creative—hallmarks of adaptive resilience (Tierney 2014)—in the new crises brought on by unexpectedly frequent and intense storms.

While interviewees at response-focused organizations described fewer instances of adapting their organizational protocols and processes, they played a key role in facilitating adaptations in interorganizational and cross-sectoral collaboration. This included strengthening formal ties between NSSOs. For example, ARC established new formal collaborations with response-active organizations via memoranda of understanding (MOUs) that defined specific roles and resource-sharing agreements. Response-focused organizations also collaborated with a few long-standing partners in government agencies to gain greater recognition of the value of nonprofit partners on the part of FEMA and county-level emergency managers. For example, a local government official with a leadership role in the COAD recounted a crucial post-Michael meeting when she and others succeeded in persuading emergency managers to attend the quarterly COAD meetings during blue skies:

The emergency managers were like, "Oh wow." They knew about COAD. [But] I said, "But they can't help you if you don't get on the conference calls. You just can't. So, assign someone, assign an administrative assistant, get a volunteer, listen to conference calls, share information on what you're lacking so we can actually do something."

The lack of prior engagement of emergency managers with the local COAD suggests the increased roles of NSSOs may have been driven more by governmental administrative failure (Simo and Bies 2007) than by proactive efforts by government at joint emergency planning (Brudney and Gazley 2009). Regardless, the example illustrates how response-focused organizations, acting as catalysts of collaboration, could contribute to enhancing the adaptive resilience of local disaster management systems.

### **Barriers to Adaptation (RQ4)**

In describing how their organizations adapted to take on new responsibilities, interviewees at response-active and recovery organizations discussed factors that hindered their adaptation. They

described barriers to integrating with cross-sectoral collaborative networks as well as barriers to accessing the resources needed to fulfill their new disaster response and recovery roles.

As noted earlier, response-focused organizations were key to catalyzing more robust formal ties among NSSOs as well as between government agencies and NSSOs. However, these new relationships were not distributed evenly. Of the six response-active NSSOs participating in this study, four were members of the COAD. Managers at these organizations spoke highly of the COAD and expressed increased desire to be involved in the aftermath of the three storms. Yet they often found it impossible to dedicate staff time to regular COAD meetings during blue sky periods. Even Catholic Charities, which had been at the center of disaster response during Michael, reverted to more uneven involvement in the COAD several months later.

Barriers to integration into formal networks like COAD were exacerbated by the dependence of these networks, in practice, on more informal relationships. Consistent with the literature on disaster collaboration, many interviewees described personal relationships fostered during blue skies as crucial to collaboration during disaster events (Kapucu et al. 2010; Simo and Bies 2007). At the time of this study, the Big Bend COAD (centered in Tallahassee's Leon County but serving the surrounding Big Bend region) consisted of 57 members, including 13 government agencies, 12 NSSOs, 8 other nonprofits, and 24 religious organizations. But much of the blue skies activity of the group was conducted by a smaller leadership team, which included representatives from response-focused organizations like ARC and Salvation Army as well as the director of Leon Volunteer Services, a county government agency. Participants in this core group commonly used the idiom "picking up the phone" to illustrate the value of relationships developed during blue skies. A staff member at Salvation Army explained:

But it's meetings throughout the year during blue skies, you know, you develop relationships . . . We have each other's numbers on speed dial, and all of us are going to pick up the phone because, during a disaster, you've got a phone in each hand and 100 calls. We're going to pick up those calls from our partners.

Likewise, other interviewees from response-focused NSSOs described how personal ties of trust and friendship—a form of bonding social capital (Aldrich and Meyer 2014; Kapucu and Garayev 2012)—were crucial to communication and resource sharing during the immediate response period, when one must make tough decisions about which calls to answer.

While staff at other nonprofits were not explicitly excluded, these circles of friendship centered on relationships between staff of response-focused organizations. A key reason for this de facto exclusivity was that staff at response-active or recovery nonprofits were less involved in disaster work during blue sky times, when these relationships were cultivated. For example, the Salvation Army staff member recalled how she and other key leaders in the COAD often went out to a local pub together after meetings. She said this "personal, just time, just decompression time" allowed collaborators to reflect on their process and share constructive criticism in a nonthreatening way. But attendance at these informal meetings was limited to key leaders in response-focused organizations.

Response-active and recovery organizations also struggled to access the resources they needed to adapt to new responsibilities. For example, despite taking on crucial roles in disaster response, Tallahassee 211, Housing 4 All, and several other organizations initially lacked generators. By the end of the three storms, most

of these organizations had obtained grants to purchase generators—a development precipitated by their increasing integration into disaster response following the three storms. It is notable that, because of its lack of a generator, Tallahassee 211 was invited to operate out of the county's Emergency Operations Center (EOC) during all three storms. Yet, despite this seeming recognition of its importance, Tallahassee 211 was not able to attain funding for a generator until the conclusion of the 3-year spike in storms.

Some response-active staff attributed difficulty accessing resources to a failure of response-focused organizations and government agencies to recognize the importance of response-active organizations to disaster response. For example, the manager of a local homeless shelter described how, during Michael, police officers were assigned to be present at storm shelters but not at local homeless shelters:

I had a building full of 500 people and I couldn't get the city or the county to relinquish one law enforcement official to come onsite. That was really tough. I'm like, "I have 500 people in this building. What do you mean this is not a priority? This has to be a priority. 500 people who are citizens in this building."

Local government officials had apparently failed to see that a homeless shelter faces challenges similar to a storm shelter's during a disaster event. While the staff member at the homeless shelter was eventually able to persuade city officials to assign a police officer, the failure of local government to anticipate and plan for this need speaks to the relatively peripheral position of such response-active organizations in the local disaster management system.

The resource limitations of response-active NSSOs may, in some cases, have been compounded by their lack (relative to response-focused NSSOs) of cross-regional resource-sharing networks. Across all classes, NSSOs were able to buffer the effects of limited or inconsistent resources to the extent that they were integrated into geographically dispersed resource-sharing networks. Some response-active organizations, such as Catholic Charities, had networks similar to those of response-focused organizations [see the earlier section "Challenges Experienced Varied by Class (RQ2)"]. As the interviewee explained, "If say one Catholic Charities is affected and their operations are down, the other Catholic Charities step in to help them, whether that's with supplies, case management, even bookkeeping services. We just all really try to chip in..." However, other response-active and recovery NSSOs were limited by their relatively localized social capital. Housing 4 All, for example, relied primarily on other local housing and homeless organizations for support—organizations that were also strained by the storms. Without robust networks beyond the impacted region, Housing 4 All was at a disadvantage in terms of both its inherent resilience and its ability to access knowledge and resources for effective adaptation.

## Discussion and Policy Implications

During the 3-year period of annual major storms, nonprofit social service organizations in Tallahassee adapted to become more involved in immediate disaster response. This is consistent with the broad hypothesis that an intensification of disaster activity will lead to expanded roles for NSSOs in disaster systems. However, in a more novel and nuanced finding, the study also showed how these adaptation processes may vary across diverse NSSO roles. Even though nonprofits with a disaster response mission (response-focused NSSOs) had not experienced such severe local storms in recent memory, they were able to adjust by extending and fine-tuning

their existing processes. Their inherent resilience (Cutter et al. 2008) was largely adequate to the change in disaster patterns. In contrast, for response-active and recovery NSSOs, which did not have disaster work as a central part of their mission, adaptation meant responding to new kinds of challenges and taking on roles with which they had little prior experience. A homeless shelter learned to operate as a de facto storm shelter to its clients. A social service agency specializing in long-term case management got a crash course in distributing disaster aid. New responsibilities brought unforeseen dilemmas, requiring the development of new policies and protocols. Relative to response-focused NSSOs, the inherent resilience of response-active and recovery NSSOs was overwhelmed, yet they demonstrated adaptive resilience (Cutter et al. 2008; Tierney 2014) in taking on new responsibilities during the 3 years of disaster intensification. As nonprofits take on new roles in disaster response and recovery, the ability to adapt quickly may be key not only to organizational resilience (Chen 2021) but to community resilience as well.

This finding suggests that, in the era of global climate change, we may need to rethink how we categorize and analyze the involvement of NSSOs in disaster response and recovery. The response-active and recovery organizations described here might traditionally be classified as *secondary* responders who provide some postdisaster services but are not routinely involved in the immediate response (Bradney and Gazley 2009). Yet, in the context of increased storm activity, organizations that might have been expected to take secondary roles found themselves thrust into the forefront of disaster response, particularly for the vulnerable populations they serve. For its residents, the homeless shelter operated in a capacity similar to that of storm shelters managed by the Red Cross, even if local government was slow to recognize this analogy. Thus, we suggest that role-based classification, rather than tiers, better captures the crucial part that NSSOs may play in disaster response and recovery.

This taxonomic point has practical implications. A clear takeaway from the Tallahassee case is that, as response-active and recovery nonprofits take on new responsibilities, there is a need to integrate them more into disaster preparation during blue skies. In Tallahassee, this has already begun through new MOUs and increased involvement of these organizations in the local COAD. However, it appears unlikely that response-active and recovery nonprofits will have the staff capacity to sustain regular involvement with the COAD or other disaster preparation systems during nondisaster times, when their resources are already chronically stretched to meet the everyday crises that are their primary mission. Insofar as the study also finds that blue sky collaboration has been crucial to building interpersonal relationships of reciprocity and trust—a finding consistent with the literature (Kapucu et al. 2010)—response-active and recovery organization may continue to face barriers to integration with local disaster management systems.

While the solutions to these challenges are beyond the scope of this paper, this case does point to a few steps that could be taken to bolster the capacity of response-active and recovery nonprofits in disaster response roles. First, these organizations could benefit from developing new policies and protocols for managing staff during disaster response periods. These could be modeled on the policies of similar organizations that have recently gone through a disaster. Second, organizations may strengthen their capacity by developing geographically broader networks with organizations with similar missions. The participation of local food banks in Feeding America offers one model—though this degree of cross-regional integration may be impractical for some local NSSOs, such as organizations offering case management. Nonetheless, cross-regional networks could be conduits for sharing resources

and knowledge. In this way, even organizations that have not encountered a disaster recently could learn from those that have.

Third, increased resources are needed to support the expanding responsibilities of NSSOs in disaster response and recovery. The current mechanisms of funding for disaster response in the United States may pose challenges to integrating response-active and recovery nonprofits into disaster systems. As staff at response-focused NSSOs noted, the reliance of US disaster response on targeted donations and volunteers raises the possibility that, with increasingly frequent disasters, the needs of impacted populations will outstrip the altruism of American citizens. These findings are broadly consistent with scholarship suggesting NSSOs may lack the resources and preparation necessary to carry out the disaster management roles delegated to them by the US government (McCurry 2009; Olson 2012; Ritchie et al. 2010). This study adds nuance to that argument by highlighting how response-active and recovery NSSOs may face particular challenges accessing knowledge and resources. The examples of nonprofits such as Tallahassee 211 struggling to buy generators speak to this issue. In allocating resources to bolster nonprofit roles in response and recovery, it will be crucial for governmental and nongovernmental funders to look beyond response-focused NSSOs and extend support for physical infrastructure (e.g., generators, cots, facility fortifications) as well as training and guidance to actors previously considered peripheral to disaster management systems.

Finally, related to the challenge of integrating NSSOs, the findings in this case also have broad implications for the structure and design of disaster management systems. Historically, ARC was a central actor in US disaster response even prior to the emergence of federal disaster management. In recent decades, however, nonprofit involvement has largely proceeded via governmental mechanisms such as the National Response Framework and the VOADS (Bradney and Gazley 2009; Kapucu et al. 2011). Within these frameworks, NSSOs are primarily enrolled as supplemental providers of mass care (FEMA 2016). In Florida, a similar pattern of collaboration is evident at the state level (Sanusi et al. 2020). As such, NSSOs arguably have only limited roles in shaping the government's approach to the underlying drivers of disaster. This is well illustrated by some interviewees' responses to questions about climate change; while they had strong opinions about how this issue impacted their work, they did not believe they had a role in addressing the root causes of disaster intensification. The question of how avoiding talk of climate change may have affected NSSO response is beyond the scope of this paper. However, because all so-called natural disasters occur at the intersection of environmental phenomena and social vulnerability (Wisner et al. 2004), NSSOs' work with vulnerable populations undoubtedly gives them a valuable vantage point for understanding and intervening in the social causes of disaster. Government agencies would benefit from engaging NSSOs not only as providers of services but also as interlocutors in the design of disaster-related policy and systems.

## Conclusion, Limitations, and Future Directions

NSSOs are already a vital part of disaster systems, but they are likely to become even more important players in coming years. The experiences of nonprofits in Tallahassee suggest that the challenges of integrating NSSOs will vary depending upon their roles in disaster response and recovery. Response-active and recovery NSSOs, formerly seen as peripheral actors, may face the greatest challenges in adapting to meet the challenges of disaster intensification. These organizations can prepare for this by developing new

policies and protocols, participating more actively in VOADS during blue skies, and broadening the geographic spread of their resource-sharing networks. However, given the chronic constraints on NSSO resources, such adaptations are only likely to be successful with additional support from central governmental and nongovernmental actors in disaster response. Specifically, this study suggests that targeted provision of training and resources to response-active and recovery NSSOs may facilitate the transition to more resilient disaster systems in the era of climate change.

Several limitations of this study are relevant to these findings and implications. First, as an exploratory case study, this study was not designed for generalizability and can make no claim about the validity of findings beyond this case. More specifically, while this case was chosen as an example of disaster intensification, climate-induced intensification may occur more gradually in many areas, and there may be no stark break between past patterns and a so-called new normal. As such, the adaptation patterns observed in this case may be relatively unique. Second, the purposive sampling process drew on researchers' own networks and the networks of research participants, raising the possibility of selection bias. In particular, if nonprofits were entirely disconnected from the local COAD, their response and recovery activities may not be well represented in this study. Finally, the richness of the qualitative data is limited by primary reliance on interviews with managerial staff, whose post hoc accounts of disaster management are shaped by their own social positions, memories, and agendas.

This study points to the need for further research into heterogeneity among NSSO roles in disaster response systems and how different roles may entail different challenges and needs. In future studies, the authors will build on the current study by using survey methods to test and refine their taxonomy and improve our understanding of diversity in NSSO roles. In addition, the authors aim to conduct long-term participant observation in response-focused and recovery NSSOs, ideally during response and recovery, to gain a deeper understanding of how they engage with response-focused NSSOs and government agencies. This will also improve understanding of the needs of these emergent actors, their value for cross-sectoral collaborations, and the best ways to more fully integrate them into disaster systems.

## Data Availability Statement

Some or all data, models, or code generated or used during the study are proprietary or confidential in nature and may only be provided with restrictions (e.g., anonymized data).

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## References

- Aldrich, D. P., and M. A. Meyer. 2014. "Social capital and community resilience." *Am. Behav. Sci.* 59 (2): 254–269. <https://doi.org/10.1177/0002764214550299>.
- Alexander, D. 2006. "Globalization of disaster: Trends, problems and dilemmas." *J. Int. Aff.* 59 (2): 1–22.

Berlemann, M., and M. F. Steinhardt. 2017. "Climate change, natural disasters, and migration—A survey of the empirical evidence." *CESifo Econ. Stud.* 63 (4): 353–385. <https://doi.org/10.1093/cesifo/ifx019>.

Berrebi, C., A. Karlinsky, and H. Yonah. 2021. "Individual and community behavioral responses to natural disasters." *Nat. Hazard.* 105 (2): 1541–1569. <https://doi.org/10.1007/s11069-020-04365-2>.

Bolin, R. 1993. *Household and community recovery after earthquakes*. Boulder, CO: Univ. of Colorado.

Bradney, J. L., and B. Gazley. 2009. "Planing to be prepared: An empirical examination of the role of voluntary organizations in county government emergency planning." *Public Perform. Manage. Rev.* 32 (3): 372–399. <https://doi.org/10.2753/PMP1530-9576320302>.

Chen, X. 2021. "Nonprofit resilience in a natural disaster context: An exploratory qualitative case study based on Hurricane Florence." *Hum. Serv. Organ. Manage. Leadersh. Governance*. 1–17. <https://doi.org/10.1080/23303131.2021.1946455>.

Chikoto-Schultz, G. L., A. Russo, P. Manson, and J. White. 2018. "Oregon nonprofit disaster preparedness: Finding from the 2018 survey." Accessed March 7, 2021. [https://pdxscholar.library.pdx.edu/npi\\_research/2/](https://pdxscholar.library.pdx.edu/npi_research/2/).

Comfort, L. K., and N. Kapucu. 2006. "Inter-organizational coordination in extreme events: The world trade center attacks, September 11, 2001." *Nat. Hazard.* 39 (2): 309–327. <https://doi.org/10.1007/s11069-006-0030-x>.

Cornish, F., A. Gillespie, and T. Zittoun. 2014. "Collaborative analysis of qualitative data." In *The SAGE handbook of qualitative data analysis*, edited by U. Flick, 79–93. London: SAGE.

Curnin, S., and D. O'Hara. 2019. "Nonprofit and public sector interorganizational collaboration in disaster recovery: Lessons from the field." *Nonprofit Manage. Leadersh.* 30 (2): 277–297. <https://doi.org/10.1002/nml.21389>.

Cutter, S. L. 2016. "Resilience to what? Resilience for whom?" *Geog. J.* 182 (2): 110–113. <https://doi.org/10.1111/geoj.12174>.

Cutter, S. L., L. Barnes, M. Berry, C. Burton, E. Evans, E. Tate, and J. Webb. 2008. "A place-based model for understanding community resilience to natural disasters." *Global Environ. Change* 18 (4): 598–606. <https://doi.org/10.1016/j.gloenvcha.2008.07.013>.

Dai, A. 2011. "Drought under global warming: A review." *Wiley Interdiscip. Rev. Clim. Change* 2 (1): 45–65. <https://doi.org/10.1002/wcc.81>.

De Vita, C. J. 2006. "Preparing for the next disaster." In *After Katrina: Shared challenges for rebuilding communities*, edited by C. J. De Vita, 27–31. Washington, DC: Urban Institute.

DHS (Department of Homeland Security). 2019. *National response framework*. DHS 28–29. Washington, DC: DHS.

Drennan, L., and L. Morrissey. 2019. "Resilience policy in practice—Surveying the role of community based organisations in local disaster management." *Local Gov. Stud.* 45 (3): 328–349. <https://doi.org/10.1080/03003930.2018.1541795>.

Eckel, C., P. J. Grossman, and A. Milano. 2007. "Is more information always better? An experimental study of charitable giving and Hurricane Katrina." *South. Econ. J.* 74 (2): 388–411. <https://doi.org/10.1002/j.2325-8012.2007.tb00845.x>.

Eller, W. S., B. J. Gerber, and S. E. Robinson. 2018. "Nonprofit organizations and community disaster recovery: Assessing the value and impact of intersector collaboration." *Nat. Hazard. Rev.* 19 (1): 05017007. [https://doi.org/10.1061/\(ASCE\)NH.1527-6996.0000269](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000269).

Elsner, J. B. 2006. "Evidence in support of the climate change—Atlantic hurricane hypothesis." *Geophys. Res. Lett.* 33 (16). <https://doi.org/10.1029/2006GL026869>.

Feehy, S., and M. Clarke. 2007. "What determines Australia's response to emergencies and natural disasters?" *Aust. Econ. Rev.* 40 (1): 24–36. <https://doi.org/10.1111/j.1467-8462.2007.00439.x>.

FEMA. 2016. "Emergency support function #6—Mass care, emergency assistance, temporary housing, and human services annex." Accessed March 16, 2022. [https://www.fema.gov/sites/default/files/2020-07/fema\\_ESF\\_6\\_Mass-Care.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_ESF_6_Mass-Care.pdf).

Flatt, V. B., and J. J. Stys. 2013. "Long term recovery in disaster response and the role of non-profits." *Oñati Socio-Legal Ser.* 3 (2): 346–362.

Florida, R., and C. Melladner. 2015. *Segregated city: The geography of economic segregation in America's metros*. Toronto: Martin Prosperity Institute.

Flyvbjerg, B. 2006. "Five misunderstandings about case-study research." *Qual. Inq.* 12 (2): 219–245. <https://doi.org/10.1177/1077800405284363>.

Fothergill, A., and L. A. Peek. 2004. "Poverty and disasters in the United States: A review of recent sociological findings." *Nat. Hazard.* 32 (1): 89–110. <https://doi.org/10.1023/B:NHAZ.0000026792.76181.d9>.

FSU (Florida State University) Emergency Management. 2018. "Tropical storms & hurricanes: History at FSU." Accessed April 6, 2021. <https://emergency.fsu.edu/resources/hazards/tropical-storms-hurricanes/tropical-storms-hurricanes-history-fsu>.

Gazley, B., and J. L. Bradney. 2007. "The purpose (and perils) of government-nonprofit partnership." *Nonprofit Voluntary Sect. Q.* 36 (3): 389–415. <https://doi.org/10.1177/0899764006295997>.

Gentles, S. J., C. Charles, J. Ploeg, and K. McKibbon. 2015. "Sampling in qualitative research: Insights from an overview of the methods literature." *Qual. Rep.* 20 (11): 1772–1789. <https://doi.org/10.46743/2160-3715/2015.2373>.

Haines, A., R. S. Kovats, D. Campbell-Lendrum, and C. Corvalán. 2006. "Climate change and human health: Impacts, vulnerability and public health." *Public Health* 120 (7): 585–596. <https://doi.org/10.1016/j.puhe.2006.01.002>.

Hare, J. 2006. *Historic frenchtown: Heart and heritage in Tallahassee*. Cheltenham, UK: History Press.

Hennink, M., I. Hutter, and A. Bailey. 2020. *Qualitative research methods*. London: SAGE.

Holland, G. J. 2012. "Hurricanes and rising global temperatures." *Proc. Natl. Acad. Sci.* 109 (48): 19513–19514. <https://doi.org/10.1073/pnas.1216735109>.

Hoopes, S., A. Abrahamson, A. Anglin, C. Connelly, M. Holdsworth, and D. Treglia. 2020. "Alice in Florida: A financial hardship study." Accessed April 14, 2021. <https://www.unitedforalice.org/florida>.

Hutton, N. S. 2018. "Sustaining resilience: Modeling nonprofit collaboration in recovery." *Prof. Geogr.* 70 (4): 655–665. <https://doi.org/10.1080/00330124.2018.1443479>.

Hutton, N. S. 2019. "Institutionalizing nonprofit influences post-disaster." Chap. 10 in *Emerging voices in natural hazards research*, edited by F. I. Rivera, 251–284. Cambridge, MA: Butterworth-Heinemann.

Jenkins, P., T. Lambeth, K. Mosby, and B. Van Brown. 2015. "Local nonprofit organizations in a Post-Katrina landscape: Help in a context of recovery." *Am. Behav. Sci.* 59 (10): 1263–1277. <https://doi.org/10.1177/0002764215591183>.

Kapucu, N. 2005. "Interorganizational coordination in dynamic contexts: Networks in emergency management." *Connections* 26 (2): 33–48.

Kapucu, N. 2006. "Public-nonprofit partnerships for collective action in dynamic contexts of emergencies." *Public Administration* 84 (1): 205–220. <https://doi.org/10.1111/j.0033-3298.2006.00500.x>.

Kapucu, N., F. Yuldashev, and M. A. Feldheim. 2011. "Nonprofit organizations in disaster response and management: A network analysis." *Eur. J. Econ. Political Stud.* 4 (1): 83–112.

Kapucu, N., T. Arslan, and M. L. Collins. 2010. "Examining intergovernmental and interorganizational response to catastrophic disasters: Toward a network-centered approach." *Administration Soc.* 42 (2): 222–247. <https://doi.org/10.1177/0095399710362517>.

Kapucu, N., and V. Garayev. 2012. "Designing, managing, and sustaining functionally collaborative emergency management networks." *Am. Rev. Public Administration* 43 (3): 312–330. <https://doi.org/10.1177/0275074012444719>.

Kapucu, N., F. Yuldashev, and M. Feldheim. 2018. "Nonprofit organizations in disaster response and management: A network analysis." *J. Econ. Financ. Anal.* 2 (1): 69–98. <https://doi.org/10.1991/jefa.v21.a13>.

Keller, E., and D. DeVecchio. 2015. *Natural hazards: Earth's processes as hazards, disasters, and catastrophes*. London: Pearson Higher Education.

Knutson, T. R., et al. 2010. "Tropical cyclones and climate change." *Nat. Geosci.* 3 (3): 157–163. <https://doi.org/10.1038/ngeo779>.

Lehmann, J., D. Coumou, and K. Frieler. 2015. "Increased record-breaking precipitation events under global warming." *Clim. Change* 132 (4): 501–515. <https://doi.org/10.1007/s10584-015-1434-y>.

Lincoln, Y. S., and E. G. Guba. 1985. *Naturalistic inquiry*. Newbury Park, CA: SAGE.

Liu, Y., J. Stanturf, and S. Goodrick. 2010. "Trends in global wildfire potential in a changing climate." *For. Ecol. Manage.* 259 (4): 685–697. <https://doi.org/10.1016/j.foreco.2009.09.002>.

Mason, L. R., and J. Rigg. 2019. "Introduction and overview" In *People and climate change: Vulnerability, adaptation, and social justice*, edited by L. R. Mason and J. Rigg. New York: Oxford University Press.

McCurry, R. A. 2009. *Dependence on non-profits during major disaster relief: A risky dilemma*. Washington, DC: George Washington Univ. Homeland Security Policy Institute.

McGuire, B. 2013. *Waking the giant: How a changing climate triggers earthquakes, tsunamis, and volcanoes*. New York: Oxford University Press.

Mousavi, M. E., J. L. Irish, A. E. Frey, F. Olivera, and B. L. Edge. 2011. "Global warming and hurricanes: The potential impact of hurricane intensification and sea level rise on coastal flooding." *Clim. Change* 104 (3–4): 575–597. <https://doi.org/10.1007/s10584-009-9790-0>.

Moynihan, D. P. 2009. "The network governance of crisis response: Case studies of incident command systems." *J. Public Administration Res. Theory* 19 (4): 895–915. <https://doi.org/10.1093/jopart/mun033>.

O'Brien, G., P. O'keefe, J. Rose, and B. Wisner. 2006. "Climate change and disaster management." *Disasters* 30 (1): 64–80. <https://doi.org/10.1111/j.1467-9523.2006.00307.x>.

O'Donovan, K. 2015. "Disaster recovery service delivery: Toward a theory of simultaneous government and voluntary sector failures." *Administration Soc.* 51 (1): 120–139. <https://doi.org/10.1177/0095399715622231>.

OLRC (Office of the Law Revision Counsel of the US House of Representatives). 2014. *United States code: Title 36, chapter 3001: The American Red Cross*. Washington, DC: OLRC.

Olson, L. L. 2012. "Of hell and high water: Longitudinal case studies of the internal and external recovery efforts of non-governmental organizations after Hurricane Katrina." Ph.D. dissertation, School of Business, George Washington Univ.

Padgett, D. 2017. *Qualitative methods in social work research*. Thousand Oaks, CA: SAGE.

Palinkas, L. A., S. M. Horwitz, C. A. Green, J. P. Wisdom, N. Duan, and K. Hoagwood. 2015. "Purposeful sampling for qualitative data collection and analysis in mixed method implementation research." *Administration Policy Ment. Health* 42 (5): 533–544. <https://doi.org/10.1007/s10488-013-0528-y>.

Pena, A. A., S. Zahran, A. Underwood, and S. Weiler. 2014. "Effect of natural disasters on local nonprofit activity." *Growth Change* 45 (4): 590–610. <https://doi.org/10.1111/grow.12056>.

Pipa, T. 2006. *Weathering the storm: The role of local nonprofits in the Hurricane Katrina relief effort*. Washington, DC: Aspen Institute.

Pollock, M. J., et al. 2019. "Preparedness and community resilience in disaster-prone areas: Cross-sectoral collaborations in South Louisiana, 2018." Supplement, *Am. J. Public Health* 109 (S4): S309–S315. <https://doi.org/10.2105/AJPH.2019.305152>.

Reichert, J. 2014. "Induction, deduction, abduction." In *The SAGE handbook of qualitative data analysis*, edited by U. Flick, 123–125. London: SAGE.

Ritchie, L., K. J. Tierney, and B. Gilbert. 2010. "Disaster preparedness among community-based organizations in the city and county of San Francisco: Serving the most vulnerable." In *Community disaster recovery and resiliency: Exploring global opportunities and challenges*, edited by D. S. J. D. MillerRivera and J. D. Rivera, 3–39. Boca Raton, FL: CRC Press.

Rivera, J. D., and A. E. Nickels. 2014. "Social capital, community resilience, and faith-based organizations in disaster recovery: A case study of Mary Queen of Vietnam Catholic Church." *Risk Hazards Crisis Public Policy* 5 (2): 178–211. <https://doi.org/10.1002/rhc3.12050>.

Robinson, S. E., and H. Murphy. 2013. "Frontiers for the study of nonprofit organizations in disasters." *Risk Hazards Crisis Public Policy* 4 (2): 128–134. <https://doi.org/10.1002/rhc3.12038>.

Roulston, K. 2014. "Analysing interviews." In *SAGE handbook of qualitative data analysis*, edited by U. Flick, 297–312. London: SAGE.

Rummukainen, M. 2012. "Changes in climate and weather extremes in the 21st century." *WIREs Clim. Change* 3 (2): 115–129. <https://doi.org/10.1002/wcc.160>.

Sanusi, F., J. Choi, M. B. Ulak, E. E. Ozguven, and T. Abichou. 2020. "Metadata-based analysis of physical-social-civic systems to develop the knowledge base for Hurricane shelter planning." *J. Manage. Eng.* 36 (5): 04020041. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000802](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000802).

Simo, G., and A. L. Bies. 2007. "The role of nonprofits in disaster response: An expanded model of cross-sector collaboration." *Public Administration Rev.* 67 (Dec): 125–142. <https://doi.org/10.1111/j.1540-6210.2007.00821.x>.

Sledge, D., and H. F. Thomas. 2019. "From disaster response to community recovery: Nongovernmental entities, government, and public health." *Am. J. Public Health* 109 (3): 437–444. <https://doi.org/10.2105/AJPH.2018.304895>.

Smiley, K., J. Howell, and J. Elliott. 2018. "Disasters, local organizations, and poverty in the USA, 1998 to 2015." *Popul. Environ.* 40 (2): 115–135. <https://doi.org/10.1007/s11111-018-0304-8>.

Smith, S. L. 2012. "Coping with disaster: Lessons learned from executive directors of nonprofit organizations (NPOs) in New Orleans following Hurricane Katrina." *Administration Social Work* 36 (4): 359–389. <https://doi.org/10.1080/03643107.2011.604401>.

Tierney, K. 2014. *The social roots of risk: Producing disasters, promoting resilience chapter 8. Adaptive resilience in the face of disasters*, 197–226. Redwood City, CA: Stanford University Press.

UPHS (United Partners for Human Services). 2020. *2019-2020 annual report*. Tallahassee, FL: UPHS.

Vickery, J. 2015. "Every day is a disaster: Challenges faced by homeless service organizations in disaster planning and response." *Nat. Hazard. Obs.* 40 (2): 10–13.

Wisner, B. 2010. "Climate change and cultural diversity." *Int. Social Sci. J.* 61 (199): 131–140. <https://doi.org/10.1111/j.1468-2451.2010.01752.x>.

Wisner, B., P. Blaikie, P. M. Blaikie, T. Cannon, and I. Davis. 2004. *At risk: Natural hazards, people's vulnerability and disasters*. New York: Routledge.

Yin, R. K. 2014. *Case study research: Design and methods*. 5th ed. Thousand Oaks, CA: SAGE.

Zakour, M. J., and E. B. Harrell. 2004. "Access to disaster services: Social work interventions for vulnerable populations." *J. Social Serv. Res.* 30 (2): 27–54. [https://doi.org/10.1300/J079v30n02\\_03](https://doi.org/10.1300/J079v30n02_03).