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The Storm is Here: Public Libraries' Role in Disaster Preparedness and Community Recovery

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Abstract

A national survey of public library directors and administrators was conducted in 2022 to assess the role of public libraries in community support following weather disasters. The results showed strong agreement (84%) among respondents that libraries have a critical service role in disaster response. Most respondents expressed concern about the impact of weather-related hazards on their communities. During and after disasters, libraries continued to offer regular services, with Wi-Fi access and computer stations being the most commonly provided. While the Stafford Act designates libraries as essential services and allows for relocation funding through the Federal Emergency Management Agency, only 36% of respondents were aware of this legislation. To fully leverage available support, libraries must enhance their preparedness prior to such events. Slightly over half of respondents (51%) indicated their libraries had an emergency preparedness plan. Among those with plans, most had a traditional emergency response plan (82%), while fewer had a continuity of operations plan (13%), and only one library had a community resilience plan. These findings highlight significant opportunities for increased preparation. Wider adoption of continuity of operations plans and greater visibility of these services would enhance libraries' effectiveness as community resources during weather disasters.

Introduction

Libraries and the communities they serve are being impacted by climate change at an increased rate, which is predicted to worsen with time. This situation encourages us to imagine the central role of libraries in people's lives and think of ways we can help our institutions not only weather these predicted disruptions - beyond the traditional library disaster preparedness plan - but to

play a catalyzing role to help our communities thrive during these unprecedented times. With a reflection on the needs of current and future libraries, library workers, and their communities, the authors undertook a national survey of public library directors and administrators. They sought to collect direct experiences of weather events, common disaster support services, an assessment of current levels of preparation, and an examination of what is needed for public library personnel to respond. This article seeks to reflect on the data collected to identify the challenges and opportunities for library leaders to respond as stewards of their institutions and partners in their communities.

Literature Review

Research shows that climate disasters are becoming more severe and are happening more frequently. Between the years 1980 and 2022 the United States has experienced 341 weather and climate disasters in which the overall cost of damages has reached or exceeded one billion dollars. According to the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information, these events included 30 droughts, 21 winter storms, 21 wildfires, 60 tropical cyclones, 37 floodings, 163 severe storms, and 9 freezes. The costliest of these incidents were hurricanes, and included Hurricane Katrina (2005) $190 billion, Hurricane Harvey (2017) $151.3 billion, Hurricane Ian (2022) $112.9 billion, Hurricane Marie (2017) $108.9 billion, Hurricane Sandy (2012) $83.9 billion, and Hurricane Ida (2021) $80.2 billion. In addition, hundreds more weather related disasters have occurred during the same time period (NOAA, 2023). The Pew Research Center, a nonpartisan research organization, has identified climate change as one of three main factors leading to the increasing number and costs of these billion-dollar disasters (Sanders, 2003).

As Sanders (2023) with Pew's U.S. Conservation program states:

> "...major disasters have compounding effects that create a vicious cycle. Extreme heat can exacerbate drought conditions, increasing wildfire risk. Wildfires leave behind barren landscapes, where vegetation would otherwise reduce runoff, increasing flood risk and leaving hillsides vulnerable to mudslides. Heavier-than-normal precipitation can increase vegetation growth, which in turn serves as fuel for wildfires."

Families are being displaced and regularly losing their homes because of the intensity of severe weather and other natural disasters. New data from a U.S. Census Bureau Household Pulse survey showed that over three million people were displaced in 2022 because of a natural disaster (U.S. Census Bureau, 2023a). Of those displaced, over 680,000 people were out of their homes for more than a week and 417,000 were displaced for more than six months. Over half a million people never returned to their homes after being relocated (U.S. Census Bureau, 2023b). People did not just lose their homes during these events, but also their lives. Between 2016 and 2019, more than 3,400 people in the United States perished due to hurricanes, severe storms, and flooding (U.S. Congress, 2019, p. 4).

According to a 2023 World Health Organizations (WHO) fact sheet, climate change is a major health risk affecting humanity. Drought and changing growing seasons are detrimental to food production. "Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhea and heat stress." (World Health Organization, 2023). Human suffering, often hard to quantify, will grow exponentially as well. For example, wildfires and heat waves cause not just loss of life due to degraded air quality but exacerbate existing health problems for millions of people.

In 2000 the role that libraries could play in building sustainable communities was championed by ALA President Sarah Ann Long. Through her initiative Long was involved in creating the "Libraries Build Sustainable Communities" project, a $300,000 grant awarded by the U.S. Agency for International Development through ALA and the Global Learning of New Jersey. The two-year project was designed for librarians to learn about the issues that fell under the umbrella of sustainability. The grant offered librarians ways to demonstrate how library staff could help community members learn about sustainability and how community sustainability issues could be addressed (Long, 2000). As an outgrowth of the grant, one of Long's initiatives was to host a pre-conference workshop at the 2000 ALA Conference in Chicago to teach librarians to use community building skills to foster sustainable development in their local areas (Jankowska, 2001).

Public libraries are seen as a mainstay of American society. In 2019 over 96 percent of people lived within a service area of one of the 17,278 public library main buildings or branches (Pelczar et al., 2021, p. 4). The 2007 Urban Libraries Council study reported that public libraries were highly regarded by survey respondents and were acknowledged as "contributing to stability, safety and quality of life in neighborhoods" (Urban Libraries Council, 2007, p. 26).

Florida public librarians are designated first responders by statutory obligation, and deliver water, relief blankets, and other necessary items when disaster strikes (SinhaRoy, 2024). After Hurricane Ian, the governor of Florida established the first Disaster Recovery Center, which brought together federal, state, and partner organizations under one roof at the Lakes Regional Library in Fort Myers, Florida to help survivors. This designation enabled the library to help citizens get the information they needed to recover from the effects of Hurricane Ian (Dunne, 2022).

The Information Institute (2010) identified seven key roles that libraries can provide in response to a hurricane. 1. Public libraries can serve as a safe haven for their communities, providing light, air conditioning, seating, and bathrooms. 2. Just being open and providing continuation of normal service during times of community upheaval is an important resource. 3. Libraries can serve as a Disaster Recovery Center and a Point of Distribution. 4. Libraries can serve as information and communication hubs offering computers, internet access, phones, copiers, chargers as well as a resource for hurricane preparation and recovery information. 5. Libraries can serve as liaisons between emergency management and cultural organizations and tourist attractions. 6. Libraries can be an evacuee resource, and 7. Libraries can be counted on to improvise and do whatever is needed during a disaster as directed by emergency management and local government. Researchers Veil and Bishop examined the policy and practice gap between public libraries and emergency management providers. Through a variety of interviews the study identified opportunities and challenges for public libraries to enhance community resilience (2014). Access to technology resources was identified as the "primary opportunity for enhancing community resilience (Veil & Bishop, 2014). Use of the Internet to contact FEMA is one of the most frequently cited services that libraries provide to their communities. The Jaegar et al. (2008) study documented that library staff at one location helped community members file over 45,000 FEMA applications and insurance claims.

The role of disaster response in Chile was examined by the Technology & Social Change Group at the University of Washington, which found that public libraries are critical parts of the communication infrastructure. After an 8.8 earthquake and tsunami struck Chile in 2010, emergency communication initiatives emerged spontaneously from a variety of public internet-

access sites, including libraries (Celedón et al., 2012, p. 1). One of the most significant lessons learned during Hurricane Katrina was how to deal with the loss of communication outlets. Effective communication in such instances can be low tech resources like externally hosted message boards (Wall, 2006, p. 195). Another example of how libraries supported their communities include a Florida public library which used Twitter during Hurricane Michael to inform the public of their schedule and details about where food and water would be available (Dorasetty, 2021, p. 29). Frequently during a major disaster basic services like electricity, water, telephone and other communication resources are interrupted. Roads may also become impassable. During these catastrophic events many people turn to libraries (Hamilton, 2011, p. 43). Citizens use libraries for power to charge electronic devices, submitting insurance claims, filing Federal Emergency Management Agency (FEMA) forms, using email, internet access and computers, as well as a safe place to stay (Hamilton, 2011, p. 44; Patin, 2021).

The awareness that libraries can serve their communities after weather events continues to grow. A research study by Madris et al. (2021), which involved interviewing three library directors, looked at the experiences of three county library systems in the Florida Panhandle after Hurricane Michael in 2018. The findings of that research identified evidence of "recurring themes of external organizational infrastructure and hierarchy, connection to community, library space and resources, and self-care. These activities aligned with previously documented roles of libraries and librarians following disaster events, such as providing shelter and connecting library users to disaster information.

In 2018, the ALA Special Task Force on Sustainability submitted a final report to the ALA Executive Board at the American Library Association's Annual Conference in New Orleans. This report specified 52 recommendations that libraries could activate to increase their sustainability (ALA Special Task Force, 2018, pp. 6-12). The ALA Special Task Force on Sustainability adopted the "triple bottom line" framework of sustainability as their working guideline. It acknowledged that, "to be truly sustainable, an organization or community must embody practices that are threefold: environmentally sound, economically feasible, and socially equitable" (ALA Special Task Force, 2018, p. 4). In 2019, in recognition of the United Nations Intergovernmental Panel on Climate Change (IPCC) findings, the American Library Association passed a resolution adopting Sustainability as a Core Value of Librarianship. The Sustainability Core Value supports the association's response to the needs of its membership by addressing "the reduction of greenhouse gas emissions while also building community resilience to adapt in the face of the impacts climate change is already causing" (Council Committee on Sustainability, 2022, p. 3). The American Library Association announced the release of the National Climate Action Strategy for Libraries, a collaboration with the Sustainable Libraries Initiative, at the ALA Annual Conference in 2024 (ALA, 2024). The plan is made up of three action points. They include: climate change mitigation, community resilience, and climate justice work. The climate change mitigation section recommends a goal for libraries to achieve net-zero greenhouse gas emissions by 2050. Under the second action point, libraries are instructed to contribute to their community's resilience by adopting both internal disaster preparedness plans and strategic goals that address their areas most likely climate hazards. And the final action point acknowledges that libraries can use their transformative power to address the intersection of human and civil rights through climate justice work (Sustainable Libraries Initiative, 2024).

Social cohesion has been called the fabric that makes up society. Research by Eric Klinenberg has shown that it is a trait that supports human survivability in the face of a disaster, and it is an

attribute that libraries can advance through the growth of social connection and commitment to supporting equity, diversity, and inclusion (EDI) (Aldrich, 2019). In the aftermath of a disaster like hurricanes "libraries play an essential role" (Hamilton, 2011, p. 40). Public libraries placement within communities, their role as information providers as well as suppliers of online services make them poised to serve as natural components of disaster response (Patin, 2021, p. 2).

But in order for library workers to be available to their communities during a disaster, they need to look to their own personal welfare. Library workers need to have support from their administration and boards to prepare for disasters at home so they can have the resilience to support the library through disasters at work. In addition, many workers may also lose all their possessions during a disaster and later on have to deal with insurance issues and building contractors to get back on their feet. It is important that library administration be flexible and put the needs of their employees ahead of the needs of the library. It is also important to understand that staff members' needs will be different after a disaster and that some people may not be physically or psychologically able to return to work (Wall, 2006, pp. 195-196).

Communities need to be aware that after a disaster it may be days before FEMA or weeks before government aid will be available. Libraries need to be prepared to deal with emergency situations on their own for at least three or more days. Under the FEMA Recovery Policy RP9523.3, dated December 14, 2010, the Federal Emergency Management Agency designated essential community organizations as those whose services are "necessary to save lives, or to protect and preserve property or public health and safety" (FEMA, 2010, p. 1). Under Definitions (11) (B) in Section 102 of the Stafford Act, libraries are designated as among the temporary facilities delivering these essential services (FEMA, 2021, p. 3). Unfortunately, in numerous occurrences, libraries did not have disaster plans in place at the time they experienced a disaster (Patin, 2021).

As the risk of weather-related disasters increases, in-depth library disaster planning resources have become more available. For example, *The Librarian's Disaster Planning and Community Resiliency Guidebook*, is a 50-page informational toolkit designed to help libraries survive disasters and be more resilient using an assortment of planning and training aids. This comprehensive guidebook, created by the New Jersey State Library, instructs librarians on how they can claim their role and operate as "information first responders" (New Jersey State Library n.d., p. 4).

Another information resource associated with the New Jersey State Library is Michele Stricker's article *Ports in a Storm: The Role of the Public Library in Times of Crisis*. This article offers guidance on how to prepare a library's response to a disaster and how to resume services as fast as possible. In addition, the author examines how libraries "contribute to community resiliency by providing a safe haven and needed services after a disaster" (Stricker, 2019).

Recent research funded by the Institute of Museum and Library Services indicates that librarians are on the frontline of disaster recovery by connecting those affected by a disaster to recovery resources. How successful they are at this work can depend on their relationships with local governments and the researchers noted the importance of efforts being more systematic. "Librarians are unsung heroes for small, rural communities in times of disaster, and our research concluded that local governments need to include libraries in local disaster mitigation plans to ensure community resiliency" (Crotty, 2022).

Methods

The survey instrument was prepared by the authors, reviewed by an outside expert on climate resilience in libraries, revised in response to the comments, and submitted for Institutional Review Board approval through the Minnesota State University at Mankato. Once approved, the survey was built in Qualtrics and sent to national email distribution lists that reached all 50 states. The authors wanted to survey those who had the authority to make decisions about policy, infrastructure, programs, and building modifications; survey respondents were limited to library directors or library administrators. In cases where few or no responses were received, the authors reached out to the State Libraries and Library Associations and requested help distributing the survey or contacted library directors and administrators through direct email.

Once the survey was closed, the data was downloaded as a spreadsheet and stored in a password-protected online storage system. Each question and associated response was parsed onto a spreadsheet. The responses were tallied and synthesized in tables and graphs. Open-ended questions were evaluated with qualitative methods and grouped by the themes that emerged in the responses. The themes were tallied and described below in the results.

Results

The authors received 1,021 responses to the survey. However, once incomplete surveys were eliminated as well as surveys for libraries outside of the United States, the authors were left with 856 submissions. Surveys were considered complete if the respondent advanced through the entire survey. Beyond consent to participate in the survey, a response to each question was not required to advance through the survey. Of the 856 complete submissions, 142 (17%) originated from New York State. The states with the second and third highest participation rates were New Jersey (58; 7%) and Pennsylvania (48; 5.61%) respectively. There was at least one submission from all 50 states except Mississippi. While a survey response was received from Mississippi, it was incomplete and therefore, eliminated. Table 1 presents the distribution of the submissions among the 49 states.

Table 1
Submission Distribution among States

State	Submissions	Percentage
New York	142	17%
New Jersey	58	7%
Pennsylvania	48	6%
Massachusetts	42	5%
New Hampshire	41	5%
Wisconsin	36	4%
Connecticut	34	4%
California	32	4%

Ohio	28	3%
Utah	26	3%
Tennessee	24	3%
Oklahoma	22	3%
Colorado	21	2%
Oregon	21	2%
Texas	21	2%
Arkansas	18	2%
Minnesota	18	2%
West Virginia	17	2%
Florida	16	2%
Indiana	15	2%
Louisiana	15	2%
Washington	15	2%
New Mexico	14	2%
North Dakota	13	2%
Delaware	12	1%
South Dakota	12	1%
Georgia	11	1%
Montana	10	1%
Virginia	10	1%
Iowa	8	1%
Rhode Island	7	1%
Vermont	7	1%
Maryland	6	1%
North Carolina	5	1%
Arizona	4	<1%
Alaska	3	<1%
Illinois	3	<1%

Missouri	3	<1%
Nevada	3	<1%
Hawaii	2	<1%
Kansas	2	<1%
Maine	2	<1%
Michigan	2	<1%
Wyoming	2	<1%
Alabama	1	<1%
Idaho	1	<1%
Kentucky	1	<1%
Nebraska	1	<1%
South Carolina	1	<1%
Total:	**856**	**100%**

Demographics of Libraries Surveyed

Over three quarters (653; 76%) of the libraries in the survey provide service to an area whose population was 50,000 people or fewer (Table 2). The population metric of 10,001-25,000 accounted for the greatest percentage of service areas, accounting for 21%.
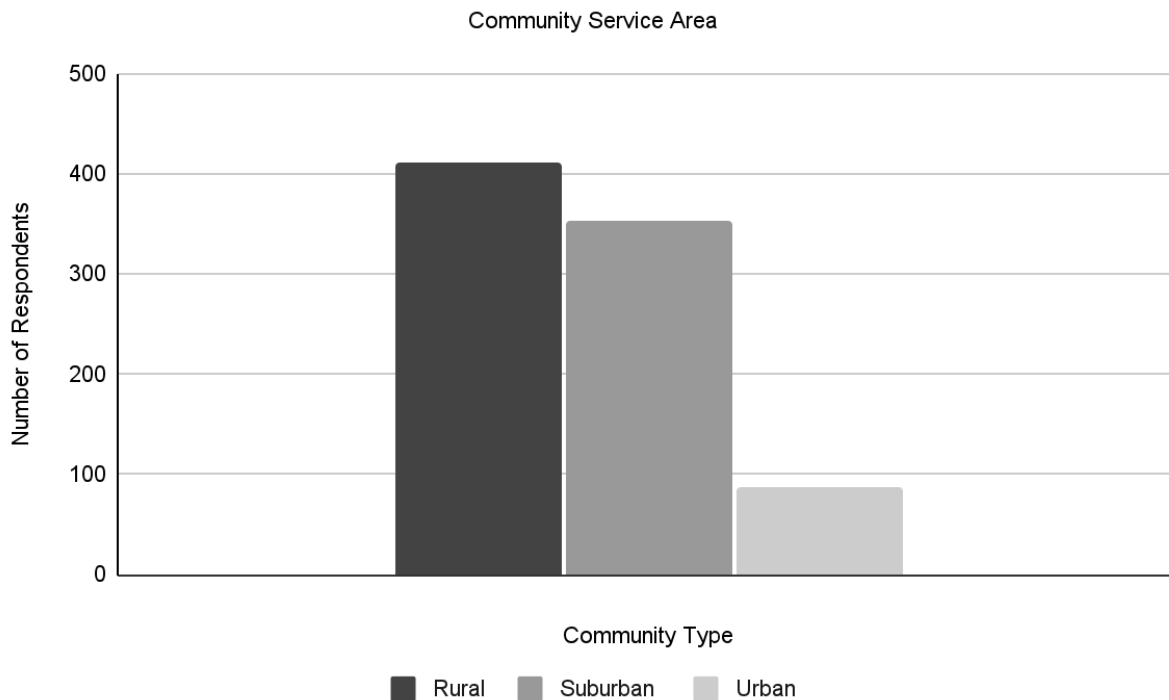
Table 2
Population in library service areas

Population Size	**No.**	**Percentage**
Up to 2,500	126	15%
2,501-5,000	82	10%
5,001-10,000	126	15%
10,001-25,000	183	21%
25,001-50,000	136	16%
50,001-100,000	82	10%
100,001-250,000	72	8%
250,001-500,000	23	3%

500,001-1 million	17	2%
Over 1 million, up to 2 million	7	1%
Over 2 million, up to 5 million	2	<1%
Total:	**856**	**100%**

In terms of the characteristics of their service areas, 412 (48%) libraries were identified as rural, 354 (42%) as suburban, and 88 (10%) as urban (Figure 1). Individuals who completed the survey tend to be located in libraries serving rural or suburban areas.

Figure 1
Community Service Area - Population Characteristics

A quarter (215; 25%) of the libraries in the survey have 1-2 full-time equivalent (FTE) positions (Table 3). Over half of the libraries (493; 58%) employ 10 or fewer FTEs (Table 3).

Table 3
Distribution of FTE positions in libraries surveyed

FTE	No. of Libraries	Percentage
1 - 2	215	25%
3 - 5	152	18%
6 - 10	126	15%

11 - 25	162	19%
26 - 50	94	11%
51 - 100	42	5%
101 - 250	30	4%
Over 250	23	3%
Total:	**844**	**100%**

Weather-related Disaster Service Role and Concern

When asked whether public libraries have a service role to play in local weather-related disasters, an overwhelming majority of respondents provided an affirmative, yes, response (716; 84%; Table 4).

Table 4
Do public libraries have a service role in local weather-related disasters?

Response	No.	Percentage
Yes	716	84%
Unsure	123	14%
No	15	2%
Total:	**854**	**100%**

When asked how concerned they were about weather-related hazards facing their local community, almost two thirds (544; 63%) of respondents clustered in the range from 6 to 10 (Table 5).
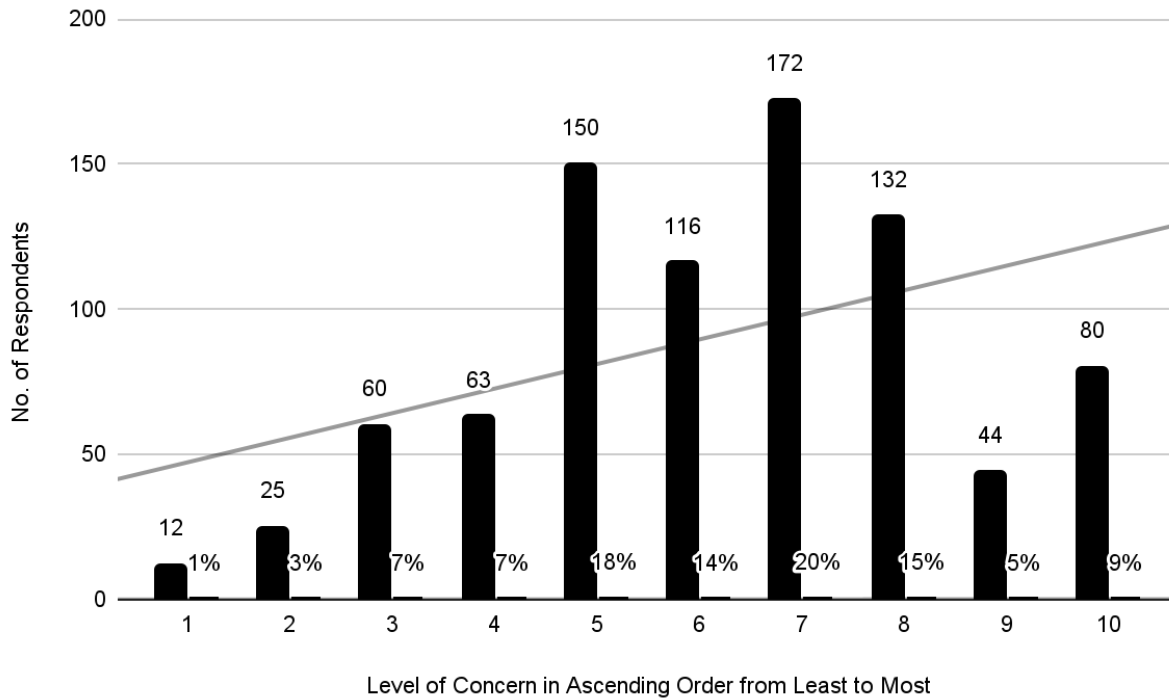
Table 5
On a scale of 1 to 10, how concerned are you about weather-related hazard risks facing your local community?

Level of Concern	No.	Percentage
1. Not at all concerned	12	1%
2	25	3%
3	60	7%
4	63	7%
5	150	18%
6	116	14%
7	172	20%
8	132	15%
9	44	5%
10. Extremely concerned	80	9%
Total:	854	100%

Figure 2
Concern about the risks of weather-related hazards

When respondents were asked if they felt state and national library leaders had a role to play in helping public libraries and their communities prepare for weather-related disasters, almost a quarter (206; 24%) of respondents felt this help was extremely important and a majority (680; 80%) chose 6 or above.

Table 6
Do state and national library leaders have a role in helping public libraries prepare their communities for weather-related disasters?

How Important	No.	Percentage
1. Not at all important	9	1%
2	12	1%
3	22	3%
4	30	4%
5	96	11%
6	90	11%
7	145	17%
8	157	18%
9	82	10%
10 Extremely important	206	24%
Total:	**849**	**100%**

Over a 10-year period from 2012-2022, 65% of library service areas had experienced a weather-related disaster, but only 29% of library service areas experienced a weather disaster that resulted in a federally declared disaster (Table 7).

Table 7
Weather-related disasters at library services areas from 2012-2022

Experienced weather-related disaster		Experienced weather-related disaster that was federally declared	
Yes	No	Yes	No
65%	35%	29%	71%

Respondents have seen their libraries experience a variety of weather-related disasters (Figure 2). The most common weather event was a winter storm or blizzard, followed by severe thunderstorms, floods, and excessive heat.

Figure 2
Weather events experienced at public library locations
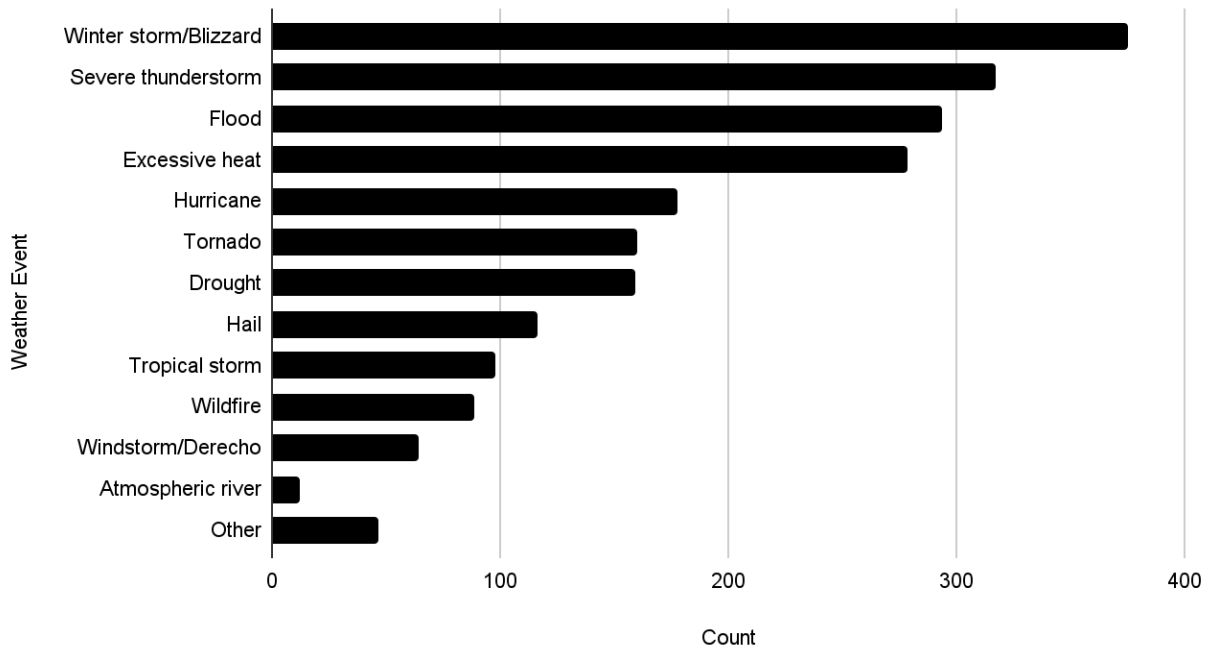
Library Services Offered

Libraries offered many services to support their communities through weather events. The most common service provided by libraries was access to Wi-Fi/Internet. The top five resources libraries provided, listed in order of responses received, were 1) WiFi and Internet access, 2) computer access, 3) emergency information, 4) electronic charging stations and equipment, and 5) day sheltering (Table 8). While there were fewer responses to federally declared weather events than non-federally declared weather events, both types had similar patterns in the types of services offered. Therefore, the federal declaration of a weather event had little effect on the services provided by libraries (Table 8).

Table 8
Comparison of Library Support to communities after non-federally declared and federally declared weather-related disasters

Library Support of Community through	Not Federally Declared	Federally Declared	Difference (Not Federally Declared vs Federally Declared)

Weather-Related Disasters	No.	Percentage	No.	Percentage	No.	Percentage
Provided Wi-Fi and internet access	493	19%	220	17%	273	2%
Provided computer workstations	433	17%	207	16%	226	1%
Provided emergency information	361	14%	169	13%	192	1%
Offered electronic charging stations and equipment	340	13%	167	13%	173	0%
Provided day shelter	280	11%	130	10%	150	1%
Provided children's activities	235	9%	112	9%	123	0%
Helped residents fill out FEMA or other federal assistance forms	175	7%	113	9%	62	-2%
Worked with relief organizations	115	4%	73	6%	42	-2%
Distributed food, water, and/or household supplies	77	3%	41	3%	36	0%
Provided personal hygiene resources	52	2%	20	2%	32	0%
Other	46	2%	19	1%	27	1%
Assisted with damage cleanup after the storm	16	1%	12	1%	4	0%

Stafford Act 2011

Respondents were asked of their awareness that FEMA formally designated public libraries as essential community organizations under the Stafford Act 2011. The majority of individuals (64%) were unaware of this designation (Table 9). Likewise, a majority of the 852 respondents, 680 (80%) were unaware that public libraries are eligible for temporary relocation facilities during major disasters and emergencies under the FEMA Public Assistance Program (Table 9). However, more than half of the respondents noted that a planning instrument was in place (434, 51%) for disaster response (Table 9).

Table 9

Awareness of Stafford Act of 2011 and FEMA relocation eligibility in conjunction with a disaster response planning instrument in place

Response	Awareness of Stafford Act of 2011		Awareness of eligibility for relocation under FEMA program		Disaster response planning instrument in place	
	No.	Percentage	No.	Percentage	No.	Percentage
Yes	307	36%	172	20%	434	51%
No	545	64%	680	80%	418	49%
Total:	852	100%	852	100%	852	100%

Emergency Planning Instruments

An Emergency Preparedness and Response Plan was defined as the immediate response by library workers when a library facility and its collections are affected by a disaster. A Continuity of Operations Plan (COOP) was defined as how a library resumes services to the public, while possibly continuing to make building repairs and salvage collections at the same time (Aldrich & Stricker, 2022). A Community Resilience Plan speaks to the library's strategic community partnerships to connect residents with the services and support they need in the aftermath of a disaster.

Among respondents who had only one planning instrument in place, most (82%) had an Emergency Preparedness and Response Plan, while the Continuity of Operations Plan was used by 13% of respondents (Table 10). The sole use of a Community Resilience Plan was the least common with just one respondent, and 5% of respondents reported using an alternate plan without using any of the other listed plans.

Table 10

Usage of Disaster Planning Instruments

Response	No.	Percentage
Emergency Preparedness and Response Plan only	232	82%
Continuity of Operations Plan (COOP) only	36	13%
Alternate Plan (other)	15	5%
Community Resilience Plan only	1	<1%
Total:	284	100%

Of the plans listed, the Emergency Preparedness and Response Plan was the one most often used either alone or in combination with other plans (63%, 370; Table 11). The Continuity of Operations Plan was the second most common plan to be used alone or in combination with other plans (28%, 165). The use of an alternate plan alone or in combination with other plans was fairly rare (6%, 38). The Community Resilience Plan used alone or in combination with other plans was the least common among respondents (2%, 13).

Table 11
Usage of Disaster Planning Instruments when combined with other plans

Response	No.	Percentage
Emergency Preparedness and Response Plan alone and combined with other plans	**370**	63%
Continuity of Operations Plan (COOP) alone and combined with other plans	**165**	28%
Alternate plan used alone or combined with other plans	**38**	6%
Community Resilience Plan alone and combined with other plans	**13**	2%
Total	**586**	**100%**

The Emergency Preparedness and Response Plan was most frequently combined with the Continuity of Operations Plan (77%, 109), followed by an Alternate Plan (8%, 11). The Emergency Preparedness and Response Plan was equally likely to be combined with a Continuity of Operations Plan and the Community Resilience Plan (8, 6%) as with a combination of the Continuity of Operations Plan (COOP) and an Alternate Plan (8, 6%). The Continuity of Operations Plan was rarely used in combination with the Community Resilience Plan (1%, 1) or an Alternate Plan (2%, 3). The Community Resilience Plan was the least likely to be combined with the other plans (<1%, 1) (Table 12).

Table 12
Usage of the Emergency Preparedness and Response Plan and Continuity of Operations Plan when combined with other plans

Response	No	Percentage
Emergency Preparedness and Response Plan and Continuity of Operations Plan (COOP)	109	77%
Emergency Preparedness and Response Plan and Alternate Plan	11	8%
Emergency Preparedness and Response Plan, Continuity of Operations Plan (COOP), and Community Resilience Plan	8	6%
Emergency Preparedness and Response Plan, Continuity of Operations Plan (COOP), and Alternate Plan	8	6%

Continuity of Operations Plan (COOP) and Alternate Plan	3	2%
Emergency Preparedness and Response Plan, Community Resilience Plan, and Alternate Plan	1	<1%
Emergency Preparedness and Response Plan and Community Resilience Plan	1	<1%
Continuity of Operations Plan (COOP), and Community Resilience Plan	1	<1%
Emergency Preparedness and Response Plan, Continuity of Operations Plan (COOP), Community Resilience Plan, and Alternate Plan	0	0%
Total	**142**	**100%**

Actions to Prepare for Weather-related Disasters

When respondents were asked if their library's administration had taken actions to prepare for weather-related disasters that might occur locally, approximately half of respondents selected yes (418, 49%). However, many were unaware of the status of action related to weather-related disasters (163, 19%).

Table 13
Library Administration action to prepare for local weather-related disasters

Response	No.	Percentage
Yes	418	49%
No	271	32%
Unsure	163	19%
Total	**852**	**100%**

Respondents listed "identified the most common weather-related disaster for your region" as the primary action of library administration (384, 22%) in preparation for weather-related disasters. This was followed by "signed up with entities that provide emergency news or alert systems" (339, 20%), "spoken to emergency management representatives in your area" (317, 18%), "become familiar with the local incident command system" (268, 15%), "taken specialized disaster management training" (161, 9%), "provided disaster recovery training for library staff members" (108, 6%), "participate in creating the community-wide emergency plan" (104, 6%), "provided disaster recovery training for community members" (29, 2%), and finally, "other" (21, 1%).

Table 14
Responses regarding the actions of library administration to prepare for weather-related disasters that might occur locally

Response	No.	Percentage

Identified the most common weather-related disasters for your region	384	22%
Signed up with entities that provide emergency news or alert systems	339	20%
Spoken to emergency management representatives in your area	317	18%
Become familiar with the local incident command system	268	15%
Taken specialized disaster management training	161	9%
Provided disaster recovery training for library staff members	108	6%
Participate in creating the community-wide emergency plan	104	6%
Provided disaster recovery training for community members	29	2%
Other	21	1%
Total		**99%***

Adds up to 99% due to rounding.

Library Certification

Few library respondents noted that their libraries were participating as a Climate Resilience Hub as certified through Communities Responding to Extreme Weather (CREW) (50, 6%) or members of the Sustainable Library Initiative, which offers Sustainable Library Certification (26, 3%) (Table 15).

Table 15
Participation in certification programs for climate resilience and sustainable libraries

	Climate Resilience Hub through Communities Responding to Extreme Weather (CREW)		Sustainable Library Certification through the Sustainable Library Initiative	
Response	**No.**	**Percentage**	**No.**	**Percentage**
Yes	50	6%	26	3%
No	798	94%	816	97%
Total	848	100%	842	100%

Preparation

Most respondents indicated that they were not aware of FEMA-sponsored National Preparedness month (64%). Of those who were aware, only 7% of survey respondents

indicated that they participated in the event. Another 29% were aware of the event, but did not participate.

Table 16
Library Participation in FEMA-sponsored National Preparedness Month that Occurs Every September

Response	No.	Percentage
Yes	59	7%
No, but aware of the event.	247	29%
No, unaware of the event.	545	64%
Total	851	100%

Disaster Recovery Training

Disaster recovery training is fairly rare in libraries with only 14% of respondents reporting that their library had received training (Table 17). Among those whose library received training, the most common disaster recovery training was provided by a national or state library organization (Table 18). Training provided by state government agencies (35, 17%) was the second most reported, followed by an organization not listed in the survey (33, 16%), Community Emergency Response Team (28, 14%), and FEMA (19, 9%). Training provided by a University organization was the least common (4%, 5) (Table 18).

Table 17
Respondents reporting if their library received disaster recovery training

Response	No.	Percentage
Yes	117	14%
No	735	86%
Total	852	100%

Table 18
Organization type that provided your library's disaster recovery training

Response	No.*	Percentage
National or state library organization	48	24%
State government agency	35	17%
Organization not mentioned	33	16%
Community Emergency Response Team (CERT)	28	14%
Federal Emergency Management Agency (FEMA)	19	9%

Nonprofit or foundation agency	19	9%
American Red Cross	16	8%
University organization	5	2%
Total	203	100%

*Respondents could select a combination of training options.

Disaster-resistant Infrastructure

Most respondents reported that their library building did not have any disaster-resistant infrastructure features (645, 75%) (Table 19). Of those that reported having disaster-resistant infrastructure features (24%, 206), a whole building generator was the most common with 33% of respondents reporting their library had this feature and no respondents reported having a micro wind turbine (Table 20).

Table 19
Does your library have disaster-resistant infrastructure

Response	No.	Percentage
Yes	206	24%
No	645	75%
Total	**856**	**99%***

*Does not add up to 100% due to rounding.

Table 20
Types of disaster-resistance infrastructure features reported in library facilities

Response	No.*	Percentage
Whole building generator	132	33%
Daylighting	55	14%
Solar panels with a backup battery	39	10%
Day cooling and/or warming center infrastructure	39	10%
Natural ventilation	36	9%
Rainwater bioswales	18	5%
On-site rainwater irrigation storage or gray water systems	13	3%
Vegetated roofs	8	2%
Backup water and sewage systems	8	2%
Solar energy for hot water	7	2%

Micro wind turbines	0	0%
Other	45	11%
Total	400	100%

*Respondents could select multiple categories of disaster-resistant infrastructure.

A variety of coverage was provided by generators (17 responses) from partial building power to power for specific rooms like the computer server room. In addition, solar was mentioned as a back-up energy source. There were a wide variety of items in the other category and it was used by 11% of respondents. Some examples included backup power as a feature for community usage or protection of the collection from humidity. Flood (four responses) and storm protection (three responses) features were also mentioned in the other category.

Engagement with Local Partners

As noted by respondents it was uncommon for libraries to work directly with local partners to address the impacts of climate change with 77% or 653 respondents noting that this was not occurring (Table 21). Respondents identified local and county governments as the most common partners (166 responses, 36%) for collaboration regarding climate change preparation and response (Table 22).

Table 21
Library engagement with local partners to address the impacts of climate change

Response	No.	Percentage
Yes	197	23%
No	653	77%
Total	850	100%

Table 22
Agencies that collaborate with libraries regarding climate change response

Responses	No*.	Percentage
Local/County government	166	36%
Nonprofit/Religious/Service/Volunteer organization(s)	97	21%
Emergency management agencies (fire	87	19%
School district(s)	53	11%
State government agencies	43	9%
Other	19	4%
Total	465	100%

*Respondents could select more than one option.

Library Programming

Respondents noted that 29% of libraries offered programs on disaster readiness topics to the public. Some examples of programs offered included creating a basic disaster supply kit, first aid training, disaster preparation and prevention, fire prevention, pandemic response, and information about what types of local disasters to expect.

Table 23
Responses regarding the offering of library programs on disaster readiness topics to the public

Responses	No.	Percentage
Yes	249	29%
No	601	71%
Total	850	100%

Information Channels

Websites and social media postings (18%, 804) were the most common way library administrators expected that their communities would receive information in the aftermath of a weather-related disaster event and newspapers were the least common way they expected their communities to receive information (9%, 391).

Table 24
The respondents' opinion about how their community will receive information in the aftermath of a weather-related disaster event

Response	No.*	Percentage
Websites/Social media postings	804	18%
Cell phone text messages or alerts	742	16%
Word-of-mouth	715	16%
Radio broadcasts	599	13%
Television broadcasts	551	12%
Newspaper announcements	391	9%
Other	740	16%
Total	4542	100%

*Respondents could select more than one option.

Notifications that respondents relayed under "other" spanned a wide variety of activities. For example, library personnel went door-to-door in some instances, used radio (Ham and CB), activated an automated call system to cell phones and landlines, and connected with churches as a way to get information to the community.

Discussion

The results from the survey indicate high levels of awareness of the need to be prepared in the face of weather events. Reported efforts by public libraries to support communities in both preparation for and in the aftermath of weather events indicates these well-meaning efforts are, for the most part, inconsistent. The lack of prioritization, documented planning, and consistency reveals a significant need for support of libraries in formal planning documentation, networking within their first-responder community, and leveraging their role in the community to raise awareness about preparedness and recovery resources.

Respondents had a high degree of agreement (84%) that public libraries have a service role in local weather-related events and a high degree of concern about weather-related hazards in their community. More than 80% expressed concern on a Likert scale of 1-10 at 5 or above, with one-third at 8 or above. This bodes well for future action to prepare libraries, library workers, and communities. However, the data, as discussed below, shows a lack of cohesive or widespread deliberate action throughout the profession.

The results indicated that libraries responded to the needs of the community in the aftermath of weather events even when this support is not formally mandated or federally funded. For example, the responses of libraries after an emergency are very similar in the types of services offered, regardless if the event was federally declared or not federally declared. However, responses are uneven and less deliberate, relying on standard services that happen to come in handy in times of need rather than specifically designed services that are deployed in the aftermath of weather-related events.

The results indicate a low level of awareness among respondents about the acknowledgement of the importance of public library infrastructure in the eyes of the federal government. Just 36% of respondents were aware that FEMA formally designated public libraries as essential community organizations under the Stafford Act of 2011, and only 20% were aware of their eligibility for funding to temporarily relocate library operations during major disasters and emergencies under the FEMA Public Assistance Program.

While about half of respondents indicated they have some type of written disaster preparedness plan (51%), participation in preparedness activities is low with just around 20% reporting they are aware of what the most common weather-related disasters are for their region, and just 6% providing training for staff on disaster recovery techniques. Participation in programs to help raise a library's preparedness internally and on behalf of their community such as the Climate Resilience Hub program (6%), Sustainable Library Certification Program (3%), or even celebrating national Preparedness Month in September (7%) was extremely low. This would indicate that libraries have not made participation in community resilience in the context of disruptive weather events a strategic priority despite their reports of being very concerned about the climate hazards in their region. This indicates that there is a disconnect between what library leaders know to be a looming issue and their actions to prepare themselves and their communities. This disconnect may not be due to a lack of empathy or ability to prioritize, but a lack of time, energy, and resources to respond to the competing demands of a modern library. Lack of administrative capacity and library staffing, particularly in small and rural library settings, should be seen as a recognized barrier that training, resources and template development take into consideration.

Of the respondents that indicated they have a written disaster response planning instrument the authors can see the plans skewed towards traditional disaster preparedness plans for their

institution (82%), therefore internally focused, with only one respondent indicating they have expanded their view of their role in disaster preparedness planning to include services for the community in the context of a severe weather event. Continuity of operations planning documentation was also a low priority with just 13% of those with disaster response planning instruments reporting they have this in place. This would seem to indicate this best practice in the wider world has not made its way into the library profession at this time. Thinking in the profession will need to evolve from a somewhat confined mentality of institution preservation to a more expansive and operational view of institutional preservation and readiness in the context of playing a deliberate and vital role in the post-event recovery and restoration of communities. There will need to be concerted training on planning and planning documentation to help accelerate the adoption of this activity in libraries.

The geography of respondents is notable with 17% of responses coming from libraries in New York State which is also the state with the most independent public library institutions (756) in the United States (IMLS, 2019). It is also notable that New York was the first state in the country with a state library association to pass a resolution acknowledging the important role of libraries in the context of climate change (Sustainable Libraries, 2015, p. 1). The second highest responding state was New Jersey, accounting for 7% of responses. New Jersey is 10th in the nation in terms of the number of public libraries. The authors see a state that has demonstrated leadership at the state level on the topic of sustainability. The New Jersey State Library provided one of the most valuable resources in the profession on the topic of disaster preparedness in the aftermath of Superstorm Sandy, the *Librarian's Disaster Planning and Community Resiliency Guidebook* (New Jersey State Library, n.d.). This would indicate that actions taken by state associations and State Libraries can increase awareness of and adoption of best practices.

Survey respondents indicated a strong opinion that state and national library leaders have a role in helping public libraries prepare their communities for weather-related disasters. More than 80% indicated that this was an important role by responding with a 6 or above on a Likert scale of 1-10, with 10 being extremely important.

As mentioned previously in the article, 76% of respondents indicated that their libraries served populations of 50,000 or less, and 48% were identified as rural libraries. In addition, over half (58%) employed 10 or fewer full-time equivalent employees. To put this in context, these numbers largely align with the demographics of libraries nationally. In the U.S., roughly 87% of public libraries serve populations of 49,999 or fewer individuals and more than three-fourths of public libraries serve areas with fewer than 25,000 people. Nationally more than two thirds (72%) of public libraries have fewer than 10 FTE staff (Pelczar, 2021). This indicates our survey sample is representative of the nation's public library census. It also underlines that the staff-to-resident ratio is particularly low in the majority of communities throughout the country, a strong indicator of why responding libraries are struggling to find the time to do the planning necessary for disaster preparedness and community recovery work that may be called for in this era.

Given the pressing and growing need for preparation in the face of the accelerated impacts of climate change, creative solutions are in order. In particular, smaller libraries serving rural communities may be some of the most important agencies in the support network of their community. This is because their populations are spread out and people will need to be more self-sufficient in the aftermath of a severe weather event. Libraries may be well positioned to act as cooling/warming centers, distribution points, and volunteer gathering spaces given the lack of other infrastructure in these communities. Due to low staffing and limited resources, there may

be a greater need to provide additional outreach, training, and resources regarding disaster preparedness to these smaller rural based libraries.

In addition, the traditional view of climate hazards will need to expand to encompass future pandemics. Over half of known human pathogenic diseases can be aggravated by climate change (Mora et al., 2022). The most recent COVID pandemic required a disaster preparedness response.

Limitations

The research conducted did not take into account municipal public libraries that fall under the disaster preparedness and community resilience planning done by a governing authority. Questions assumed autonomy to set policy, procedures, and disaster preparedness plans. The research also did not address the budgets of respondents. Nor did the authors cross reference data with other data sets such as the Yale Climate Opinion Maps or the National Oceanic and Atmospheric Administration's Climate Risk Areas Initiative. Additionally, in her paper Kay L. Wall (2006, pp. 193-194) classified the different types of disasters that may be experienced into four groups: Minor Disaster, Localized Disaster, Major Disaster, and Catastrophic Disaster. She defined how each disaster type required different types of preparations and responses including having a disaster plan and a trained disaster response. Future research could deepen the existing survey data set by cross referencing deficiencies which would help accelerate work by libraries, in particular states and climatic regions, in adopting plans that speak to the political and environmental contexts they operate within.

Future Research

An area for future research could also be a study of libraries with Emergency Preparedness and Response Plans who have experienced a federally-declared emergency. Research could explore the efficacy of those plans and share the lessons learned in terms of how library leaders adjusted those plans in the aftermath of that experience. There is also space to research the catalyzing force of public library infrastructure in disaster recovery work. How a library's preparedness work and partnerships can increase a community's resilience both in the acute aftermath and long-term health of a community.

Conclusion

The current predictions from climate scientists and policymakers indicate the need for a strong and urgent societal response in the area of disaster preparedness and recovery work in light of the impacts of climate change. This survey's research provides benchmarking data for U.S. libraries to use to increase the readiness of their institutions and their contributions to the readiness and recovery of their communities. It provides guideposts to actions libraries can take and provides the opportunity for measurable change in the profession in the future.

The majority of the respondents to our survey indicated that public libraries have a service role to play in this. This finding indicates a recognition of both the importance of libraries to their communities and the desire of library workers to participate in this vital work.

When respondents were asked how their library supported the community after a federally declared weather-related disaster, their responses were very similar to how they responded to weather events that were not federally declared. This speaks to the mindset of library leaders who are prioritizing serving the real-time needs in their communities. The public library

community is in the right place but they may not be prepared for what is coming given the unprecedented nature of climate change.

It is both heartening and disappointing to know that half the respondents have written preparedness plans. Some may say that is more than they would have expected. Others may feel that is one of the core administrative documents a library would need. Hopefully this research helps more library leaders, at the local, state, and national levels, embrace the role to prepare our institutions, library workers, and those we serve in the face of the predicted impacts of climate change.

In the face of the predicted impacts of climate change, our profession will require more awareness of the urgent need to act, opportunities for training, and general overall support for participation in disaster preparedness and recovery efforts.

As the effects of climate change increase, humans will need to employ a range of behaviors to cope with the disruptions. While we may be most familiar with the big headline events of severe storms, flooding, and wildfires that result in evacuations and loss of life, it will be the insidiously slow moving aspects such as heat waves and extended droughts, which impact our food supply chain, that will impact the most people. With forward planning and strong communities, quality of life can be preserved for more people and ultimately, lives will be saved. Our hope is that this research both highlights areas for professional development and resource development to accelerate this important work across the country.

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