

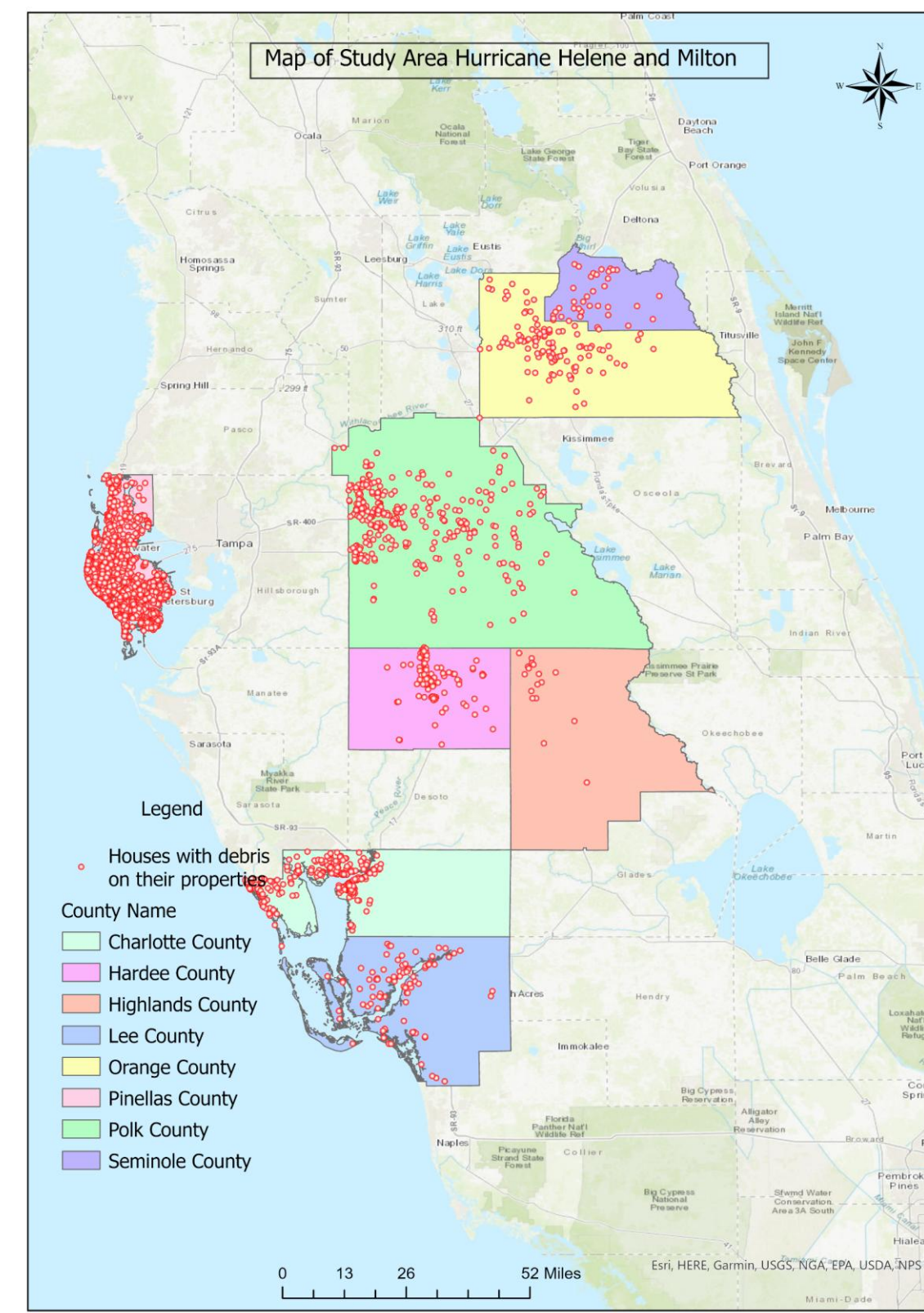
Impact of Post-Disaster Debris Management on Communities: A Case Study of Hurricane Helene and Milton

Najiba Rashid & Jenna Tilt, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University



Introduction

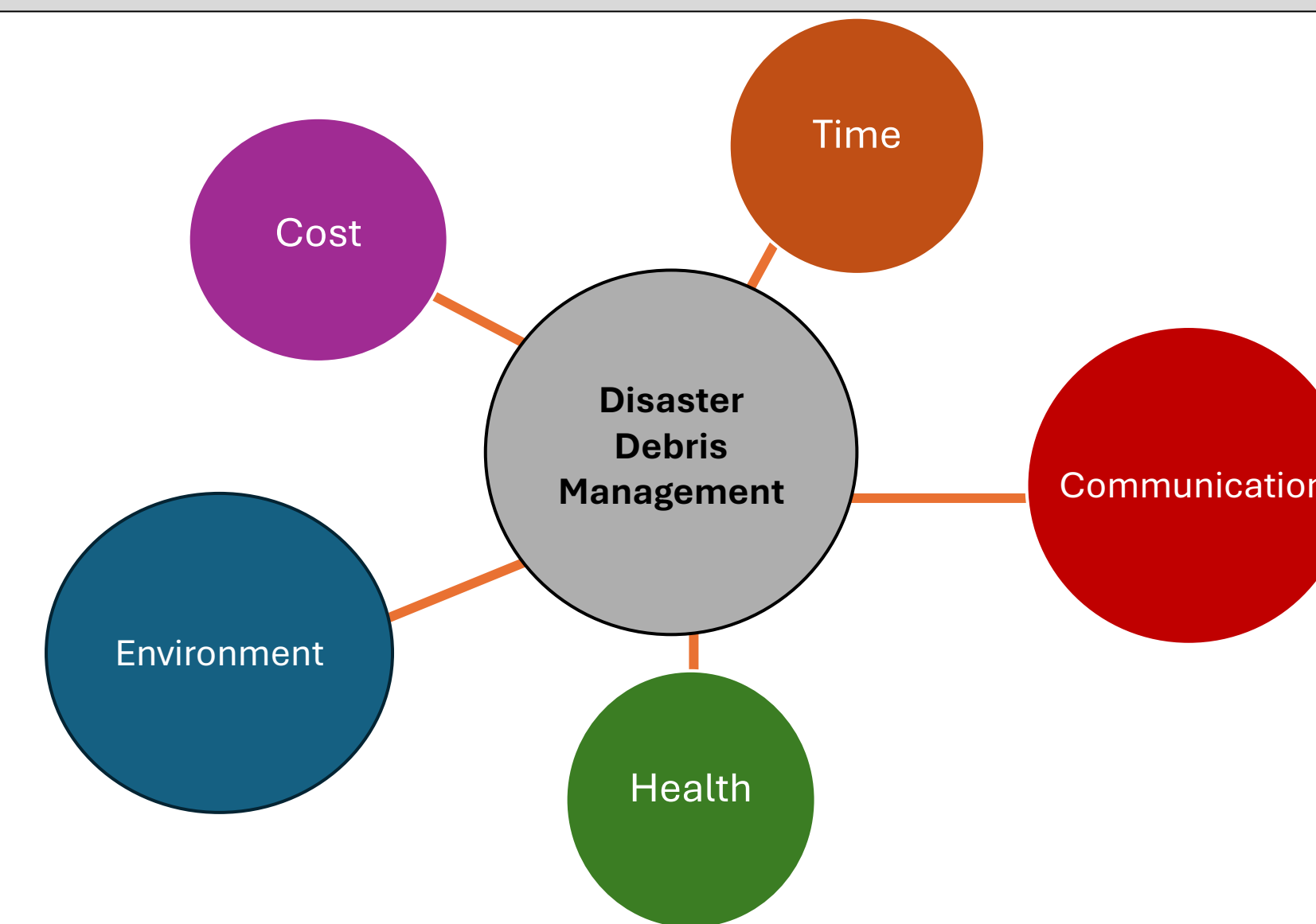
The United States faces significant challenges in managing natural disaster debris, which encompasses various materials generated by events like earthquakes, hurricanes, and floods.¹ This study aims to identify key challenges faced by stakeholders when debris removal is delayed. To understand these challenges, we interviewed stakeholders impacted by the 2024 Hurricanes Helene and Milton in Florida. We used the key findings from these interviews to build survey instruments for Hurricane impacted Florida residents and Cascadia coastal stakeholders and residents that will face similar debris accumulation after a Cascadia subduction earthquake and tsunami.



Map of Hurricane Helene and Milton, Florida

Research Questions

- What economic, social, and environmental factors are considered and prioritized when developing debris management plans and decisions, and why?
- How does the prioritization of these factors differ between local government officials and private contractors?



Key Factors in Disaster Debris Management

Methods

32 semi-structured in-depth interviews with stakeholders working on Hurricane Helene and/or Milton disaster debris removal (contractors, city officials, county officials)

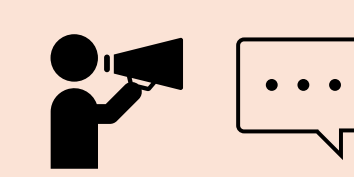


Contractors refer to private contractors, including debris haulers and monitors. Government officials refer to city and county officials, as well as U.S. Army Corps of Engineers personnel.

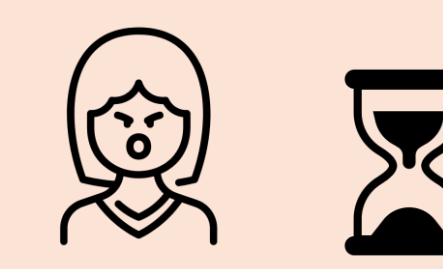
Results

PUBLIC PERCEPTION (18%)

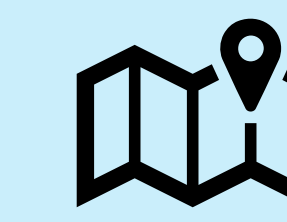
Barriers for Disaster Debris Management



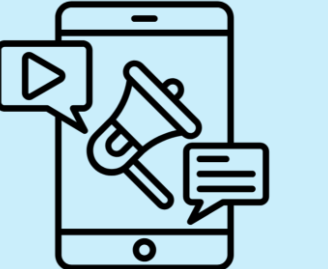
Messaging & Language Gaps
Lack of multilingual outreach, difficulty accessing instructions



Public Impatience & Equity Concerns
Demand for immediate pickup, perception of prioritized wealthy areas



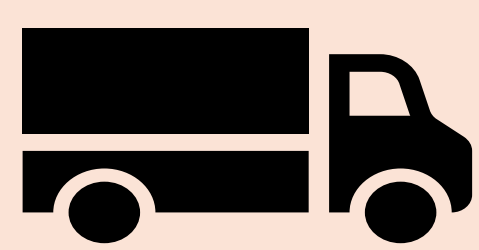
High-Tech Transparency
Residents track debris removal, increasing accountability



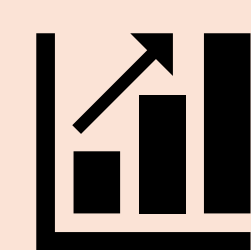
Outreach Adaptations:
Diverse methods like TikTok, ham radio, bulletin boards for elderly

CAPACITY(60%)

Barriers for Disaster Debris Management



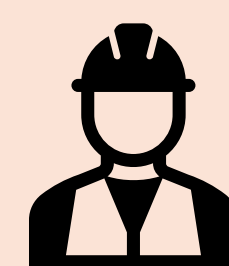
Infrastructure Barriers:
"Usually, I'd have 10 to 15 crews. This year, I had four... there was more work than workers."



\$9 to \$48/cubic yard price surge



Human Resource Strain
Severe labor shortages, staff burnout, emotional fatigue

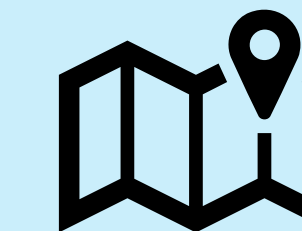


The TDMS Bottleneck

Supports for Disaster Debris Management



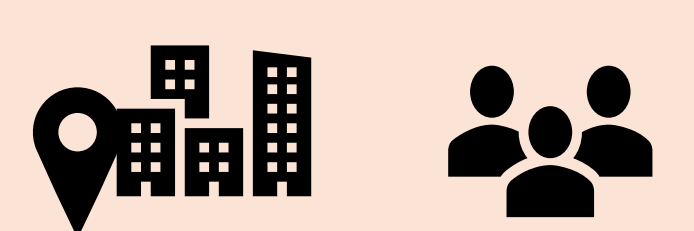
Pre-Event Contracts :Competitive bid Renewed every 2-3 years, faster crew mobilization.



GIS Tracking Technology: Facilitates debris tracking.

ORGANIZATIONAL COORDINATION (22%)

Barriers for Disaster Debris Management



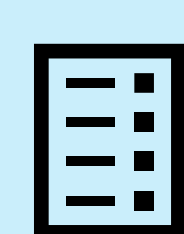
Inter-Agency Communication Barriers: Poor coordination between United States Army Corps of Engineers(USACE), city, state, and county agencies

Unclear or frequently changing FEMA guidelines. "**FEMA guidance changes all the time, and it changes region to region... A lot of times FEMA staff are untrained on the different nuances of the job. So, there's a challenge... Sometimes you feel like you're training the FEMA staff on what their job is**"

Supports for Disaster Debris Management



Regular Task Force Calls Frequent calls between Florida DEM & local cities ensure alignment



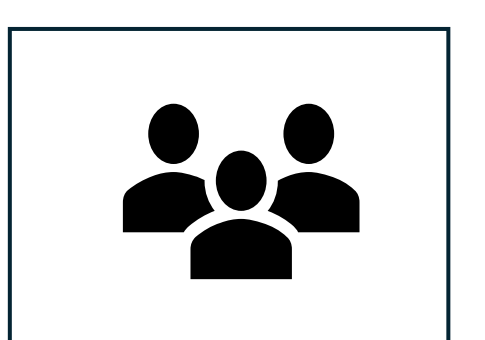
Standardizing FEMA compliance

Future Works

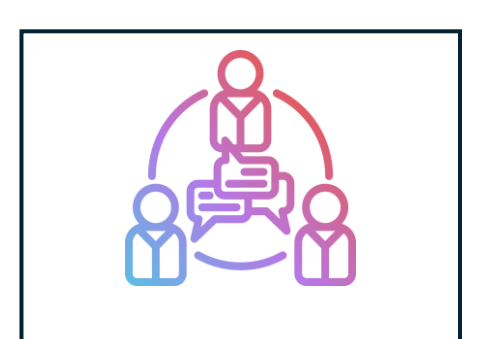
Disseminate survey in Florida hurricane Helene and Milton to identify challenges within communities.



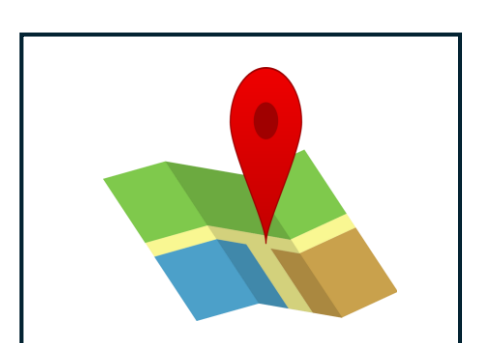
Disseminate survey for Florida Stakeholders and contractors to identify challenges within Stakeholders.



Disseminate survey in Cascadia Subduction Zone to identify preparedness level of stakeholders



Conduct suitability analysis to find Temporary Debris Management Sites and Priority Cleaning Areas.



References

1. Brown, C., Milke, M., & Seville, E. (2011). Disaster waste management: A review article. *Waste Management*, 31(6), 1085–1098. <https://doi.org/10.1016/j.wasman.2011.01.027>