Emergency Management

Abstract

The Social Resilience Project: Building Resilience in Rural Coastal Communities

Municipal

Project Team: Jeremy Bell, TNC Maine Victoria Boundy, Casco Bay Estuary Partnership Wells Research Reserve Kristen Grant, Maine Sea Grant Elizabeth Hertz, Blue Sky Planning Solutions

Ruth Indrick, Kennebec Estuary Land Trust <u>Eileen Sylvan Johnson</u>, Bowdoin College

Undergraduate Research Assistants: Kasey Cunninham'22 Bowdoin College Samara Nassor'22 Bowdoin Julia Marks '21, UC Berkeley

Study Area

The geographic and isolated setting of rural coastal communities in midcoast Maine result in high social vulnerability in the event of coastal storms. Many of these communities have limited road infrastructure and low-lying roads. Storm-related damage to transportation systems can hamper emergency response efforts.

Service center towns play a key role in supporting peninsular towns, but during storm events, residents of peninsular communities may have limited options for evacuation and experience longer travel times to

Introduction

hazards.

Our project is an innovative effort to increase social resilience by building social infrastructure through improving coordination and bridging gaps between agencies and organizations that directly support communities as they address climate change impacts such as flooding and storm surge. The first stage of the project involved conducting focus groups with representatives from emergency management, social service, conservation, and municipal sector organizations. The second phase was guided by a multisector advisory committee. What we learned from our initial research was that although sector-based resilience planning met the needs of the region's most vulnerable residents, there were a lack of knowledge across sectors as to who was impacted by storm events and a lack of coordinated cross-sector work in the three phases of a storm event: planning for, responding to, and recovering from a storm event there was a need to facilitate connections across sectors

Rural coastal communities are vulnerable to impacts of

coastal hazards. In Maine, rural coastal communities are

located on narrow peninsulas, often with a single access

communities, such as older residents living alone, high

reliance on natural resource economies, and high levels

that is at higher risk from coastal hazards. Partners from

Maine's Midcoast to strengthen social resilience. Central

to this vision is looking beyond the physical impacts of

impacts pose risks to socially vulnerable populations. A

how organizations from the four sectors (conservation,

municipal, emergency management and social service)

collaborate in the region to support socially vulnerable

populations who may be disproportionately impacted

groups through the scenario. The findings contribute to

addressing vulnerable populations impacted by coastal

an understanding of the role of social infrastructure in

by coastal storms. Participants completed pre- and

scenario exercise and a story map guided breakout

post- exercise surveys to assess the impact of the

coastal hazards and focusing on how these physical

virtual scenario planning exercise was created to test

of self-employment, combine to create a population

roadway. Demographic characteristics of these

federal, state, NGO, academic and consulting

organizations worked with eight communities in

There were two goals for this project:

- to assess the current level of resilience in the region's social infrastructure at an institutional level associated with municipalities, social service agencies, conservation organizations and emergency management agencies,
- and to strengthen social infrastructure by increasing the connections within and between the emergency management, conservation, and social service sectors and municipalities.

hospitals and shelters in service center towns.

Methodology

A Scenario Planning Exercise was held (virtually) in January of 2022. Participants were recruited from all four sectors (conservation, municipal, social service, and emergency management) and at different scales (state, regional and local). The scenario focused on a late fall storm event that would exacerbate vulnerabilities of residents due to power outages and flooding. The timeline included directly after the storm and six months after the event to allow participants to discuss recovery and planning efforts. Participants filled out a pre- and post-event survey. Breakout rooms were recorded, transcribed and coded for key themes. Six months after the event, participants prioritized recommendations.

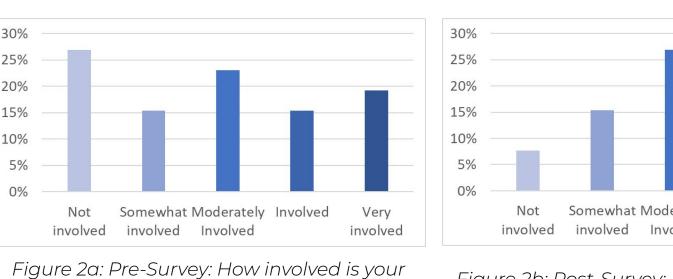
> Figure 1: Participants represented from each sectors and at different scales (local, regional state). Breakout rooms had participants across sectors but were grouped geographically

Results

The pre and post survey indicated changes in participants' awareness of the impacts of storm events on vulnerable populations. Participants also indicated and described the importance of partnerships across sectors to meet the needs of socially vulnerable populations. Analysis of participants discussions in the breakout rooms reflected a growing awareness of how organizations could both partner and provide more services to vulnerable populations.

"A multi-sector approach to planning and preparation is paramount. The exercise illustrated that different sectors share common areas of programmatic focus, however they may work in isolation from one another and therefore, there is a need to form new partnerships and specifically, to bring sectors together in planning and preparation work."

Finally, a social network analysis examining who participants worked with prior to the exercise and who they could work with in the future as result of the exercise, showed new potential partnership opportunities.



organization in addressing the impact of a storm on vulnerable populations (35% involved or very involved)

Figure 2b: Post-Survey: How involved could your organization be in addressing the impact of storms on vulnerable populations (50% -Involved or very involved)

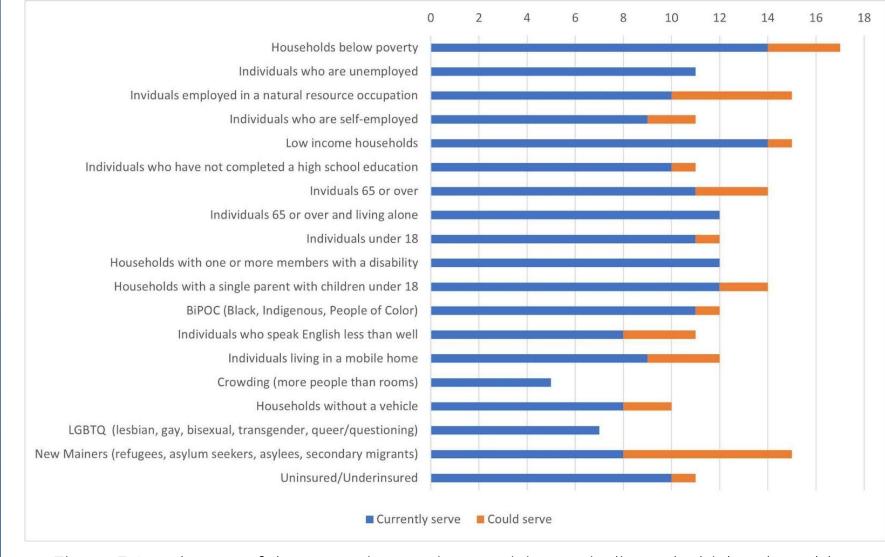


Figure 3: In advance of the scenario exercise, participants indicated which vulnerable populations their organizations serve (blue) and after the exercise participants indicated vulnerable populations their organization could serve (orange)

Figure 4: This image shows potential changes in social infrastructure. The points represent organizations by sector, and the lines represent collaborations. The image on the right shows the number of new partnerships identified by participants through the exercise.

Recommendations

As part of the exercise, participants identified recommendations to address gaps that were identified.

Address Communication Gaps

- 1. Develop a Communication Strategy. Develop a strategy for sharing information that provides specific information for vulnerable populations.
- 2. Organize Opt-in Services. Develop a comprehensive list of opt-in services and check in services across EMA, municipal, and social service agencies.
- 3. Create Unified Communication System. Develop a system for regular unified communications.

Strengthen Collaborations

- 4. Hold Future Scenario Planning Exercises.
- 5. Increase Connections with County EMAs. County EMAs work can be enhanced by strengthening current partnerships and collaborating more closely with social service and conservation organizations on planning, responding and recovering from storm events.
- 6. Develop a Directory of Contacts. Develop an inventory of local organizations
- 7. Engage Businesses in Coastal Hazard Coordination. Identify businesses at risk to coastal hazards as well as businesses that can be a resource during all stages of a coastal storm.

Build Capacity

- 8. Expand the Role of Community Emergency Response Teams (CERTs). Building upon successful models in the region, and leveraging resources from county and EMAs to provide training and resources on establishing a CERT.
- 9. Seek Additional Funding. Identify funding opportunities for building the region's capacity to meet the needs of vulnerable community members.
- 10. Provide Education About Funding Opportunities. Hold a workshop for area organizations on funding opportunities tied to hazard mitigation planning.

Conclusion

Although there are existing support systems in place for the vulnerable populations, there is a need to strengthen partnerships across sectors to better meet the need of vulnerable community members.

One approach for raising awareness of the impact of storms and highlighting opportunities for cross-sector collaborations is a scenario planning exercise

"It seems that many groups are very active in their own 'siloes.' Establishing more cross-over working during non-emergency times means greater resilience during an emergency."

A scenario planning exercise that is realistic, that includes participants across sectors and scales, and provides an opportunity to identify strengths and opportunities, can be a means for building social infrastructure.

Acknowledgements

Photo Credits: Maine: an encyclopedia, KELT, GSFB, Town of Brunswick