

EMERGENCY COMMUNICATION AND RISK PERCEPTIONS IN NORTH CAROLINA'S COASTAL ZONE

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ABSTRACT

Emergency communication is complex and multi-directional. The goal of our interdisciplinary project is to develop a method to study emergency communication and risk perceptions related to hurricanes and tropical storms along North Carolina's coast beginning with a pilot study in Dare County. Over a four month period, we interviewed emergency planners and public information officers in multiple coastal counties, reviewed official communication operating procedures, and used several techniques to collect 55 surveys from people living or working in Dare County. Preliminary data indicates that emergency planners and public information officers assume that residents are primarily concerned with personal and family safety. However, initial analysis suggests that residents collect multiple sources of information and weigh a host of factors as they choose whether or not to evacuate, prioritizing them almost on an individual basis. Because risk perceptions and decision-making processes are nuanced and dynamic, analyzing communication from hazard planning to disaster response almost certainly requires integrative thinking and multi-disciplinary approaches.

INTRODUCTION

Almost every disaster after-action report identifies communication as a major failing, yet few comprehensive textbooks on natural hazards discuss emergency communication. Little published in academic literature considers communication before and during hurricanes and its connection to risk perceptions. Were pre-storm warnings persuasive and broadcast widely enough? Did people understand the severity of the approaching storm and, if so, why did some ignore evacuation recommendations? Which communication networks become the most important when electricity is out and guidance from above limited? Community leaders publish warnings and bulletins related to storm preparedness, weather updates, and the availability of shelters, clean drinking water and other necessities. Residents receive and process these warnings in complicated ways, using expert assessments from the National Hurricane Center, past personal experience with storms, family wishes, and practical concerns that may include pet ownership or congested evacuation routes.

- To investigate the situated nature of the relationship between emergency communication and decision-making, we draw on methods used in research conducted at the University of North Carolina, Chapel Hill that helped improve

delivery of diabetes information to vulnerable populations using socio-spatial knowledge networks (SSKNs) (Gesler et al 2005). We explore the efficacy of mapping activities and information sources (SSKNs) for understanding storm risk perceptions, evacuation behavior, and communication networks.

STUDY DETAILS

First we reviewed available emergency management documents at all levels of government. Then we surveyed North Carolina coastal emergency managers and municipal public information officers to learn how storm warnings are communicated to the public and how responsible officials interact laterally with one another before and during a storm. We selected two census block groups from the northern and southern ends of Dare County and began interviewing residents over the telephone in October 2006. We subsequently opted for a mixed-methods approach after discovering the extent of unoccupied rental property in the county and public reluctance to provide any personal information over the phone. We canvassed neighborhoods and distributed surveys in local libraries, churches, a hardware store, a coffee shop and the YMCA and conducted semi-structured interviews with adult volunteers at every opportunity. One productive method involved finding community ‘gatekeepers’ willing to distribute questionnaires to their friends face-to-face or online; their interest and trust provided us with exposure and the credibility we needed to collect surveys that more fully captured people’s rich storm experiences.

- Our sample, collected during winter months, represents almost exclusively residents’ views on hurricane communication. Tourists, who are less invested in particular places and communities, almost certainly will have different attitudes about storm warnings and evacuation responses.
- Many of the Hatteras Island residents surveyed are ‘coastliners’ who have lived by the sea for multiple generations. Many northern Dare County residents are ‘sea-changers’, leaving larger urban areas with retirement.

We collected 55 surveys between October 2006 and February 2007. Our sample extended beyond the census block groups initially selected, but is more in line with respondents’ fluid geographical conception of their community’s boundaries. We asked about sources for storm information, such as local or national TV, radio, print media, internet sites, government agencies, local churches, libraries or grocery stores. We asked respondents (22 to 91 years of age with men and women about equally represented) to describe in detail pre-storm activities and places visited and whether or not they evacuated. A few open-ended questions elicited previous storm experiences and beliefs about the likelihood of hurricane landfall in their area. Classification questions included home addresses and ownership, number of years living in Dare County, age and income brackets, gender, ethnicity, and education completed. Ongoing are efforts to map pre-hurricane activities and knowledge networks using GIS and to enter survey results into a spreadsheet for analysis using computer-assisted qualitative data analysis software (March 2007).

PRELIMINARY FINDINGS

Preliminary findings are informed by the field of discourse analysis (Foucault 1972). Discourse analysis identifies the ideas that count as knowledge or are privileged as ‘truth’ within communities and investigates ‘discursive structures’ – the unwritten assumptions that produce an individual or group’s authoritative account of the world. The validity of discourse analysis depends on the richness of the information collected and the analytical skills of the researchers rather than numerical validity (Patton 1990). What follows are some early generalizations about Dare County residents’ hurricane experiences and emergency communication using a discourse analysis approach.

Dare County residents seek out storm information from a wide variety of official and unofficial sources. Television and the internet proved the most often consulted media for storm information – The Weather Channel, CNN, and NOAA’s National Hurricane Center, Southern Shores, and Dare County websites. Most referred to the National Weather Services’ hurricane intensity categories, closely following storm tracks and radar images depicting the size of the storm. Category 3 or “CAT 3” seemed a common evacuation threshold. Most sift through the glut of weather information available, paying attention to warnings that matter the most to them, either because of severity (hurricanes, tornados, and nor’easters) or practical needs to get to work on time or operate vessels (ice/snow/sleet/fog/wave heights). Coastliners in particular seek out ‘underground’ and ‘quasi-expert sources’ to validate official information, including neighborhood firemen, retired public servants or meteorologists speaking ‘off record’, commercial and charter boat fishing captains, or lifelong residents with multiple hurricanes under their belts. Volunteer amateur and citizens band radio operators are much valued after landfall.

Many respondents share a critical view of national media coverage that sensationalizes storm winds and damage, but abandons the community immediately after the storm. This is particularly true for emergency managers and public information officers who complain that media coverage ends “just when we really need the publicity to get help.” Many residents are ambivalent about media coverage, complaining that technology is at once “their biggest savior and biggest detriment. More than one respondent had something to say about the Weather Channel’s Jim Cantore. Many remarked that “Nor’easters do more damage here than hurricanes,” but their impacts are rarely covered.

The region’s hegemonic narrative relies on the perceived inevitability of storms and a pervasive tradition of self-sufficiency. Almost all respondents expressed a near fatalistic certainty about the inevitability of hurricane landfalls, writing, “We’re overdue to get slammed.” “Our luck is running out.” “Look at the statistics!” “It’s a cyclical thing.” Many express pride in their resourcefulness as they cope with isolation, long-term power and water outages, and daily voyages ferrying supplies, volunteers, or school children between Hatteras and Ocracoke islands. Self-sufficiency narratives take on almost mythical proportions, but certainly would not be possible if county authorities had not evacuated tourists. Residents boast about their “generator and a transfer switch” and

“four-wheel drive vehicles” and their community’s ability to “pull together,” then carefully note those groups that arrived to help rebuild, such as the Salvation Army or United Methodist Men, and those conspicuously absent. “I’ve donated blood; where was the Red Cross?”

Residents organize their memories of hurricane experiences around previous storm experiences, especially ‘critical incidents’. Most consider Hurricane Isabel or “Izzy” (September 18, 2003) a particularly severe and memorable storm. One remarked, “Those who never left before now leave after experiencing Isabel.” Isabel cut a new inlet between Frisco and Hatteras, damaged the road to the ferry dock in Ocracoke, and destroyed buildings throughout Dare County. Carol (1954), Camille (1969), Emily (1993), Fran (1996), Floyd (1999), and some nor’easters (“The Thanksgiving Storm” in 2006) also were prominent in our surveys. Emergency managers may have better luck persuading particular Dare County residents to evacuate by comparing impending storms and their features with past hurricanes of memory or ‘critical incidents’.

Residents understand subtleties of place and storm parameters. They compare their location on the Outer Banks to the approaching storm’s expected parameters, considering strength of ocean side winds, height of bay-side storm surge, and protection either from another island or orientation to the storm track. Southern Dare County respondents feel very vulnerable. Kitty Hawk, Nags Head, and Southern Shores residents feel less threatened because “they don’t stick out so far into the ocean.”

Evacuation decisions take into account a host of factors and reflect residents’ needs to express agency and control during a storm. Emergency management and information officers issue mandatory evacuation orders for the most severe storms and run a reentry permitting system. As they decide whether or to stay or go, residents also consider pets, medical needs, business ownership, the “heaviness of evacuation traffic,” cost, and distances to the nearest shelter or available hotel room. Many described a six to eight hour ride up the Highway 12 evacuation route, normally a drive of around 90 minutes. One drove as far as Asheville, NC seeking shelter. Many expressed their view that it is simply easier and cheaper to stay, especially when they cannot return promptly and get “stuck off the island.” Others will not evacuate because they want to “stay and protect property,” particularly if they have opted out of insurance with high deductibles.

- Women responsible for the care of young children expressed the most fear of hurricanes and the greatest willingness to evacuate. One woman, who watched flood waters rise around her as she held her six month old, feels only contempt for the inclination of coastliners to ride out storms. She wrote, “Many people have grown up on Hatteras Island. At first, I said, “when in rome, do as the romans.” I’m not roman. I was born a yankee. I will never sit through another hurricane if I can help it. I hate them.”
- Older residents seem the most conflicted. They are devoted to pets and may have mobility challenges. On the other hand, some are dependent on oxygen or

dialysis equipment and fearful of power outages. In such cases, the hospitality and accessibility of other family members or confidence in the power company often determines whether or not they evacuate.

Some residents did not know the location of the nearest emergency shelter. “Probably in Manteo?” “None in Dare County.” “Virginia Beach?” Or, “Inland.” Several regretted evacuating during Hurricane Floyd because they got caught behind flood waters further inland. Our research supports other ethnographic studies on evacuation decisions (Gladwin, Gladwin and Peacock 2001). Emergency managers should not assume that people will make completely rational choices or automatically follow mandatory evacuation orders.

FUTURE DIRECTIONS

Government agencies and emergency managers try to measure and define risk for the broader public and hope they listen. But risk is socially constructed and risk assessment by the broader public blends science, intuition, common sense and emotional considerations. These public perceptions of risk, well-founded or otherwise, should drive the decisions of politicians and government agencies.

Communication and decision making during emergencies occur on the border between social order and chaos. The resulting crisis context is greater than the sum of the parts and we cannot fully understand emergency communication with the usual scientific reductionism. Integrative thinking is required to find order in nonlinear complex systems where irreversible changes occur over time and effects are uneven (Coveney and Highfield 1995). The next stage of our analysis will examine more closely competition between official, quasi-official, and informal sources of information and the emergence of novel communication systems, the role of photographs and radar images in communicating threats, adaptive decision making responses, and greater understanding of alternative ‘ways of knowing’. We plan several complementary studies using the major themes uncovered in our survey as important frames of reference

LITERATURE CITED

- Coveney, P. and R. Highfield.** 1995. *Frontiers of complexity: The Search for Order in a Chaotic World.* Ballentine: New York.
- Foucault, M.** 1972. *The Archaeology of Knowledge*, translated by Sheridan Smith. Pantheon: New York
- Gesler, W.M., Arcury, T.A., Skelly, A.H., Nash, S., Soward, A. and M. Dougherty.** 2006. Identifying diabetes knowledge network nodes as sites for a diabetes prevention program. *Health and Place.* 12: 449-464.
- Gladwin, C.H., Gladwin, H., and W.G. Peacock.** 2001. Modeling Hurricane Evacuation Decisions with Ethnographic Methods. *International Journal of Mass Emergencies and Disasters.* 19: 2. 117-143.
- Patton, M.Q.** 1990. *Qualitative Evaluation and Research Methods*, 2nd edition. Sage: Beverly Hills.

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