

Observer

Natural Hazards

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Eighty Years of Dust

A History
of Drought
in the Midwest



Blowing Changes
by Bruce Boyd Raeburn

A Town, A Tornado, and a Team
by Jack Rozdilsky & Nick Swope

Outside the Walls
by Zachary Lamb

THE MISSION OF THE NATURAL HAZARDS CENTER is to advance and communicate knowledge on hazards mitigation and disaster preparedness, response, and recovery. Using an all-hazards and interdisciplinary framework, the Center fosters information sharing and integration of activities among researchers, practitioners, and policy makers from around the world; supports and conducts research; and provides educational opportunities for the next generation of hazards scholars and professionals. The Natural Hazards Center is funded through a National Science Foundation grant and supplemented by contributions from a consortium of federal agencies and nonprofit organizations dedicated to reducing vulnerability to disasters.

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WELCOME TO ANOTHER issue of the *Natural Hazards Observer*. This month, you'll find a range of diverse and exciting topics that emphasize the human element in disaster—how we help cause them, how we memorialize them, and most of all, our indomitable spirit in recovering from them.

We begin with this issue's cover story and a photo essay, which not only commemorate the 80th anniversary of the Black Sunday Storm—the most notorious storm of the 1930s Dust Bowl—but also explore the social and environmental impacts of that drought and subsequent dry spells.

In an era characterized by climate change, worsening water crises, and global economic uncertainty, the Dust Bowl years are more relevant than ever. If examined closely, they have much to teach about how to prepare for and respond to the acute socio-environmental challenges that will continue to emerge in the near future.

Luckily, these lessons haven't been lost—mainly because of the important place they hold in the nation's memory thanks to the iconic images of U.S. Farm Security Administration photographers. Similarly, hundreds of popular books and films have explored the travails brought on by the Dust Bowl, including John Steinbeck's *The Grapes of Wrath* (1939). And public fascination with the era hasn't waned. In fact, there's been a resurgence of public attention caused by 2008 financial crisis, recent droughts in the Midwest and California, and the 2012 release of Ken Burn's documentary *The Dust Bowl*.

Aside from photography, literature, and film, we've included two more articles that emphasize how cultural expressions serve as a catalyst for disaster recovery.

The first is a detailed look at how jazz contributed to New Orleans' rehabilitation after Katrina. In this piece, Bruce Boyd Raeburn examines how musicians who were involved in the city's recovery—who he calls jazz ambassadors—continue to play important roles as guardians of communal heritage. Meanwhile, Jack Rozdilsky and Nick Swope will tell the inspirational story of a high school football team's recovery efforts after a devastating tornado. Their article highlights how the services of a small town's football team can be translated to other rural U.S. communities facing disaster recovery.

Of course, our understanding of disaster and how we recover from it isn't entirely based on cultural icons—sometimes it's inherent in the culture itself. That's what Zachary Lamb learned when he went to three very different communities in South Louisiana in 2014. Lamb set out to examine how the people that lived just outside of New Orleans' levees perceived their vulnerability to flooding and what steps they took to reduce it. He learned from his interviews that place—and the understanding it gives us of who we are—greatly affect the way in which we perceive disaster risk.

From football players and jazz musicians who fought for their communities to the Great Plains farmers who hunkered down through a decade of dust, this issue of the *Observer* will remind you that people are surprisingly resilient and adaptive.

Enjoy your *Observer*.

Elke Weesjes, Editor
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On the Cover

Farmer Tom Vincent, Deerfield, Kansas,
© Tiffany Hagler-Geard

Tom Vincent is a retired veterinarian and part-time farmer who lives in Deerfield, Kansas. He was born after the Dust Bowl, but remembers the drought and the dust storms of the 1950s well.

"My father had a farm here in Kearny County and from the age of twelve, I would drive the tractor even though I was too short to turn the tractor on and off. I remember that one time, I was picked up by my father after I had finished for the day. During the drought it often got dark early because dust clouds would suddenly move in. My dad turned off the tractor and parked it on the side of the field.

The next morning we came back and all we could see sticking out of the dirt was the steering wheel and the seat of the tractor. There was just a tremendous amount of dirt."

Perhaps as a result of his experiences as a young boy, Vincent is very concerned about soil erosion and focuses on sustainability rather than just on maximizing yields. He sold his plough ten years ago and his farm has been 100 percent no-till ever since. As such, he is part of a small but growing group of farmers who actively look for environmentally sound farming practices.

GREAT PLAINS OR GREAT DESERT?

AMERICA'S BREADBASKET IS RUNNING DRY

By Elke Weesjes

WHEN UNITED STATES ARMY CAPTAIN Zebulon Montgomery Pike (1806-1807) was sent out by President Thomas Jefferson to explore the southern portion of the Louisiana territory, he was less than impressed with what he found. He labeled the region he traveled through in present-day Kansas, Colorado, New Mexico, and Texas as the "Great American Desert," an area unfit for human habitation and agriculture.

"These vast plains of the Western Hemisphere may become in time equally celebrated as the sandy deserts of Africa; for I saw in my route, in various places, tracts of many leagues, where the wind had thrown up the sand, in all the fanciful forms of the ocean's rolling wave, and on which not a speck of vegetable matter exhibited" (Pike 1895).

The record of his experiences traveling through the Plains was first published in 1810. Some argue that his writing slowed down the movement of people onto the Great Plains (Rees 2004). The people who eventually settled in this arid region in the 1870s and 1880s were periodically in a life and death struggle with their natural environment. They knew little about the patterns of rainfall, the qualities of the soil, or the best crops to grow in a semi-arid climate. Sometimes there would be enough rain for normal crop production, but regular droughts, blizzards, and hailstorms could turn parts of the region into the uninhabitable desert Pike so vividly described.

Compared with their professional predecessors, today's farmers are more adaptable and innovative. Due to irrigation and the U.S. Federal Farm Policy, which provides commodity, insurance, conservation, and disaster subsidies¹, farmers were able to transform a once arid region into America's breadbasket. Yet harsh weather conditions as well as manmade disasters continue to endanger their livelihoods.

This trend will likely continue unless more is done to improve agriculture policy, water management practices, and technology.

Indeed, in addition to natural hazards, agriculture in the

Great Plains is also increasingly plagued by the impact of manmade disasters—namely the water crisis and climate change. Largely as a result of these environmental conditions, the numbers of farms in the Midwest is decreasing and young people—the supposed lifeblood and future of these communities—have been moving away for decades (Wilson 2013).

A recent study (Cook, Ault, and Smerdon 2015) predicts a decade-long megadrought in the second half of the 21st century, and scientists (Steward, et al. 2013) warn that the Ogallala aquifer will be depleted by 2060. These views suggest that the future of farming in the Southwest and Central Plains looks bleak. How much longer will farming communities in this region be able to survive? Will farmers' adaptability to environmental changes triumph once more, or is the damage caused by poor water management practices and climate change irreversible?

WATER RUNS DRY

Drought in the Great Plains is hardly unique to modern times. Even though historical climate records for the region only reach back to about 1900, proxy climate records from tree rings and other sources indicate that multiyear droughts—comparable to those of the Dust Bowl years or the most recent 2010-2013 Southern U.S. drought—are a regular feature of the Great Plains climate. These droughts occurred approximately once or twice a century in the past 400 years (Woodhouse and Overpeck 1998). Reaching further back, there is also evidence for so-called megadroughts during the late 13th and 16th centuries. These megadroughts lasted for decades and were of much greater severity than those of the 20th century (Woodhouse and Overpeck 1998, Stahle, et al. 2000).

These studies indicate that the Great Plains has experienced a long history of drought cycles. Nevertheless, this does not mean that modern droughts are all natural. In fact, it would be more accurate to define the droughts of the 20th and 21st centuries as manmade natural disasters. For example, the devastating Dust Bowl effect in the 1930s was caused by sustained drought conditions compounded by years of poor land management practices that left topsoil susceptible to the forces of wind. In more recent years,

¹The majority of these subsidies go to farmers of five notoriously thirsty crops: wheat, corn, soybeans, rice, and cotton. A detailed discussion of the U.S. Farm Bill is beyond the scope of this article, but it is important to note that a disproportionate percentage of these payments go to the largest producers who represented only six percent of all U.S. farms in 2009 (Environmental Working Group 2013).



In Southwest Kansas, excessive groundwater pumping has caused Lake McKinney (top) and sections of the Arkansas River (bottom) to completely dry up. Although the flow of the river is low at its source in the Rocky Mountains and resumes again midway across the state to flow through Oklahoma and Arkansas into the Mississippi, for 200 miles in western Kansas, the Arkansas simply dies. Lake McKinney once covered about 3000 acres and its prime purpose was to store water from the Arkansas River, to be fed out to company-owned lands through a network of canals. About 25,000 acres of sugar beets, alfalfa, and maize were irrigated with this water. Besides irrigation, the lake was an attraction for boaters water skiers, swimmers and fishermen.- Lakin, Kansas. © Tiffany Hagler-Geard





The rapid electrification of agriculture meant large capacity wells increased groundwater pumping by more than 1,000 percent. By 1957 wells in the Midwest irrigated more than 3.5 million acres of corn, milo, wheat and alfalfa, turning the High Plains into "the breadbasket of the world".- Mead County, Kansas © Tiffany Hagler-Gear



Drought and record high temperatures had a major impact on ear formation in Kansas during the 2010-2013 drought. In some fields, severe drought resulted in plants in which ears were absent ("barren") or severely reduced in size with a few scattered kernels (nubbins ears).- Kearny County, Kansas, © Tiffany Hagler-Gear

we see that the effects of climate change exacerbate the impact of drought. Due to global warming, temperatures are rising and soil is getting dryer. With little moisture to evaporate out of the soil or from plants, the atmosphere stays dry. As such, warming is accelerated and makes droughts hotter and therefore drier (Seager and Vecchi 2010).

The region's most recent drought is a good example of this devastating cycle. Between 2010 and 2013, the Great Plains and portions of the Midwest experienced severe to exceptional drought conditions. The drought peaked in 2012, which had the region's driest and warmest summer in recorded history. That year showed less rainfall than in 1934 and 1936, the worst years of the Dust Bowl (Hoerling, Schubert, and Mo 2013).

IRRIGATION MADNESS

Since the Dust Bowl years, soil erosion methods have improved but irrigation is the major technical adaptation used to cope with severe drought. Nearly 13.6 million acres of the Great Plain's farmland are irrigated with water from the Ogallala Aquifer, a vast underground lake spread across eight states that range from Texas to South Dakota.

Since large-scale irrigation began in the 1950s water levels have declined more than 100 feet in parts of Kansas, New Mexico, Oklahoma, and Texas. A recent report (Stew-

ard et al. 2013) suggests that if current irrigation trends continue the Ogallala could be largely depleted by 2060. Once depleted, it could take between 500 and 1,300 years to completely refill the aquifer. As a result of this decline, wells have dried up and others have deepened. In southwest Kansas, for example, 20 percent of the irrigated farmland has gone dry already. In other places the water supply is not sufficient to irrigate in the summer (Wines 2013). Many farmers have been forced to switch to dry farming, a method that depends solely on natural rain and thus carries a huge risk of crop failure.

The current U.S. water crisis has its roots in the agricultural revolution, which unfolded between 1950 and 1970. Progress was most notable in four key areas: machinery, electrification, chemical inputs, and plant and animal breeding. The agricultural gains were dramatic. In this 20-year period, the workforce in agriculture declined by roughly half, while the value of the total product increased by 40 percent (Glennon, 2009). The extraordinary increase in production and the region's prosperity were largely made possible by irrigation. The pump and engine technologies and cheap fuel made deep-well irrigation economically feasible and promoted intensive and extensive irrigation in the Ogallala region. The common assumption that the aquifer contained an inexhaustible supply of water

informed groundwater pumping in this region, which increased by more than 1000 percent. Where farmers initially relied on their wells as a last resort, by the 1960s irrigation became the single most important activity to guarantee big yields (Guru and Horne 2000). As such, irrigation was not a response to climate, but replaced it altogether.

PAYING THE PRICE

Although technological innovations have greatly benefited farmers, they also have made modern farming more expensive. Machinery such as combines and tractors, as well as pesticides and genetically modified seeds are costly. Especially for smaller farms, the economic margins are very small and—in order to be profitable—agribusiness has to push for maximum productivity at all times (USDA 2012). But recurring dry spells and the worsening water crisis are making it nearly impossible to achieve consistently large yields. The situation is further exacerbated by rising energy prices and fluctuating grain prices. Many farms in the Great Plains are in the red, and farmers are increasingly relying on off-farm income and crop insurance money to survive (Park et al. 2011). As a result, the number of farms has shrunk while the acreage used for cultivation or livestock has also declined significantly. Simultaneously, according to the 2012 U.S. Census of Agriculture, the farm population has dwindled and the average age of farmers is rising steadily (USDA 2012).

The loss of farms and farmland devastates rural economies and upsets the cohesion of communities. The majority of people in rural farming communities do not live on farms, yet agriculture is at the heart of their local economy. When farms close down so do local businesses, from seed stores and farm equipment manufacturers to slaughterhouses and meat-packing factories (Weesjes 2015).

A FUTURE IN JEOPARDY

The droughts of the 21st century have brought the urgency of the water crisis home. Decades of excessive pumping has decreased groundwater levels to such extent that many farmers are no longer able irrigate their land. Without consistently decent yields, it is becoming harder to hold on to the farms that have often been in farmers' families for generations. Bankruptcy is inevitable for many.

Nonetheless there is hope for agribusiness as a whole. Irrigation technologies have become more efficient and farmers who still have access to wells can do more with less water. Farmers have become increasingly knowledgeable about preserving soil moisture and conserving water. An answer to survival and perhaps even growth of farming communities in the Great Plains lies in a switch from corn, soybean, cotton, and wheat to less thirsty crops. But moving away from these subsidized crops is expensive and not feasible for many. The farmers who have been pushed to the edge of bankruptcy especially won't be able to switch without substantial financial assistance (Weesjes 2015).

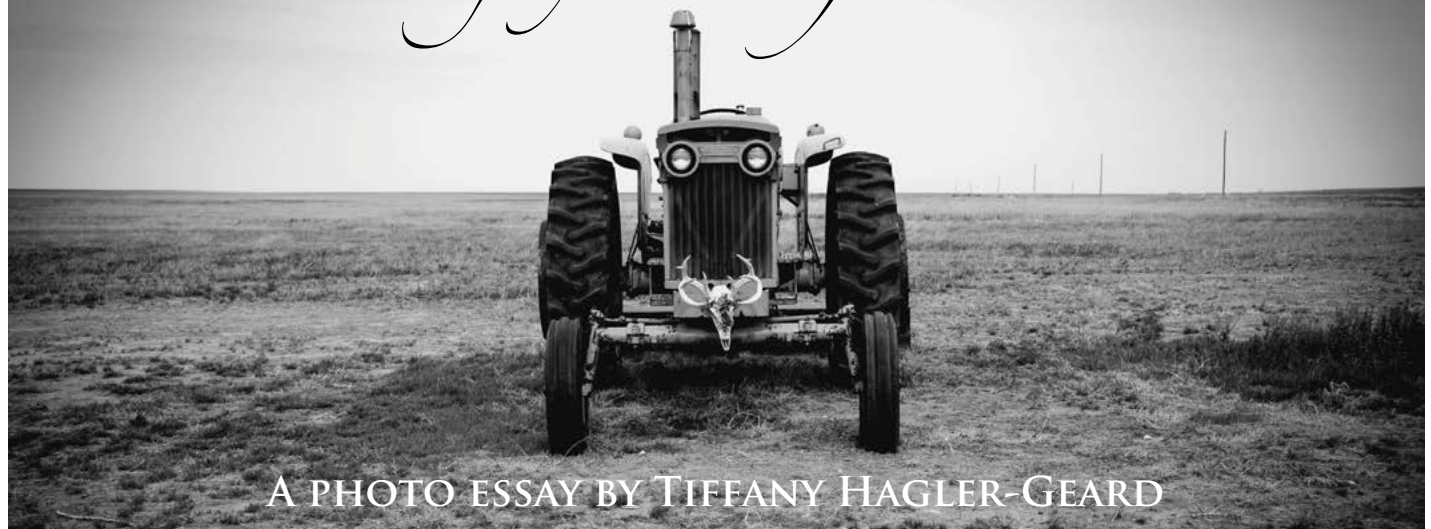
The next necessary step is reshaping federal farm policies to gradually remove the price supports, commodity

purchases, and similar subsidies that interfere with incentives to conserve water. This is an enormous challenge, but as climate change accelerates and the water crisis worsens the time to act is now. If we don't the area might well be labeled the Great American Desert.

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Eighty Years of Dust



A PHOTO ESSAY BY TIFFANY HAGLER-GEARD

ON APRIL 14, 1935, a wall of blowing sand and dust blasted into the Eastern Oklahoma panhandle, turning a warm and sunny afternoon into terrifying darkness. Rising some 8,000 feet into the air, the “mother of all dusters” rolled south across the Central Plains. The storm generated massive amounts of static electricity, and was accompanied by a sudden temperature drop of 40 degrees and winds of 65 mph. Eyewitnesses reported that day turned into the darkest night and many thought the world had come to an end.

That fateful day, known as Black Sunday, marked a turning point in trying to take some action on the havoc wreaked by the Dust Bowl. Black Sunday’s blowing dust eventually reached the capital where it blotted out the sun and motivated Congress to pass the Soil Conservation Act. That act, passed on April 27, 1935, recognized that “the wastage of soil and moisture resources on farm, grazing, and forest lands is a menace to the national welfare,” and established the Soil Conservation Service.

The Dust Bowl that struck the southern part of the Great Plains was one of the worst manmade ecological disasters in American history. It began with extensive plowing of virgin topsoil, which displaced the deep-rooted native grasses that trap soil and moisture during periods of drought and high wind. When the area was besieged by drought in the 1930s, the unanchored soil turned into dust. The result was devastation of the land and economic ruin for thousands of farmers. Although the Great Plains recovered—thanks to better farming methods, advancing technology, and a new source of water; the Ogallala Aquifer (see page 24)—it was a long hard road for many and we’ve got the pictures to prove it.

The Dust Bowl, and especially Black Sunday, were documented by a talented cadre of photographers hired by the Farm Security Administration, including Walker Evans, Russell Lee, Marion Post Walcott, John Vachon, and Dorothea Lange. Through their striking photographs, they chronicled the plight of poor farmers. Although the FSA

photography program ended in 1944, farmers’ struggles have continued and in the decades that followed, the Midwest has been plagued by recurring droughts.

Two years ago, New York-based photographer Tiffany Hagler-Geard traveled to Southwest Kansas to document the impact of the 2010-2013 drought. Following in the footsteps of the early FSA photographers, she was determined to shine a light on the area’s disappearing farming communities, whose hardships go largely unnoticed. Hagler-Geard’s photo-essay was published on *ABC News* website and several of her photographs feature in *Disaster’s Impact on Livelihood and Cultural Survival* (Michele Companion ed. 2015), which will be available this month.

To commemorate the 80th anniversary of Black Sunday, Hagler-Geard paired her photographs with Dust Bowl images with similar shots from the FSA archive. This new photo-essay, *Eighty Years of Dust*, which is currently on exhibit at Fort Lee Public Library in New Jersey, is an eerie reminder that the next Dust Bowl could be just around the corner if the same mistakes continue to be made.



Photographer

TIFFANY HAGLER-GEARD’S images have been published on *Sheknows.com*, *People.com*, *ABC News*, the *New York Post*, *Life Magazine* and many other publications.

She is currently the head of the photography department and staff photographer at SheKnows Media. In her spare time she photographs for the Humane Society of NY and volunteers as a mentor and teacher at NYC SALT, a non-profit photography program serving inner city teens in New York City.



Abandoned Farm Syracuse, Hamilton County, Kansas.

The drought and dust storms of the 1930s triggered a mass exodus from the Great Plains. Some people abandoned their homes and farms voluntarily, while others were forced out when they lost their land in bank foreclosures. In all, one quarter of the population left, packing everything they owned into their cars and trucks and driving west to California.

Photographer: Lee Russell, September 1939
 LOC collection # 8b22789
<http://www.loc.gov/pictures/search/?q=8b22789>



Abandoned Farm in Deerfield, Kearny County, Kansas.

According to the U.S. Department of Agriculture, there were 347 farms in Kearny in 2002. Five years later there were 337. In that same period, the size of the average farm in this county went from 557 acres to 519 acres. Recurring droughts, the water crisis, and subsequent financial hardship are among the reasons farmers and those that rely on farming leave their rural existence to start a new life in the city.

Photographer: Tiffany Hagler-Geard, May 2013.



Farmer Who Has Benefited by Rehabilitation Loan, Custer County, Nebraska.

In the spring of 1934, the decision was made to replace work and direct relief in rural areas with programs designed to rehabilitate farms and prepare farmers for success as the economy returned to normal. For a short time, this work was the responsibility of the Resettlement Administration and then the Farm Security Administration took it over. Between 1935 and the early 1940s, 95,000 Great Plains families were given loans and another 73,000 received cash grants through the program.

Photographer: Arthur Rothstein, May 1936
 LOC collection # 8b27785
<http://www.loc.gov/pictures/resource/fsa.8b27785/>



Farmer Billy Moore on his Bone-dry Land, Lakin, Kansas.

Moore was born during the Dust Bowl and one of his earliest memories is of his grandfather mixing mud to smear around the window sills to keep the dust out. Moore took over the farm from his father when he was a young adult and still farms today. He explained that 2012 was the worst year for him and neighboring farmers. "We had no rain and even irrigated farmers didn't have crops," he said of that year. "We would not survive if it wasn't for crop insurance."

Photographer: Tiffany Hagler-Geard, May 2013



Wheat Harvest is Six Weeks too Early Because of Drought, Beach, North Dakota.

A farmer in Beach, North Dakota, tries to salvage what is left of the wheat harvest before the scorching heat completely destroys his crops.

Photographer: Arthur Rothstein, July 1936
 LOC Collection # 8b28123
<http://www.loc.gov/pictures/resource/fsa.8b28123/>



Farmer John Jenkinson II, 79, Tilling his Land in Mead County, Kansas.

After months of extreme drought, rain finally fell in August 2013, but it was "too little too late," Jenkinson said. Rather than help matters, the rain caused weeds to spring up and threatened to absorb the little moisture left in the soil. Jenkinson tried to avoid that by killing them sooner rather than later. His old-fashioned method of tilling, rather than using herbicides, can cause dust clouds.

Photographer: Tiffany Hagler-Geard, August 2013



Mr. Wright, Tenant Farmer of Mr. Johnson and in Cooperative with Him in Irrigation Well, Stands Amidst the Corn He Has Raised This Year, Syracuse, Kansas.

The drought in the 1930s is often referred to as if it was one event, but there were at least four distinct drought episodes: 1930-31, 1934, 1936, and 1939-40. Regardless of the dry spells, some farmers like Mr. Wright—and especially those—who had access to an irrigation well—got lucky and grew successful crops.

Photographer: Lee Russell, August 1939
 LOC collection # 8a27099
<http://www.loc.gov/pictures/item/fsa1997027063/PP/>



Farmer Tom Vincent in His Milo (Sorghum) Field Just Outside of Lakin, Kansas.

Vincent always plants his milo after the first rain that falls after June 10—the same way his father-in-law, who gave him the farm, did. The method turned out to have merit the year this photo was taken. "There were people who had milo two feet high before I even went out on the field, and theirs turned brown and black because of a lack of rain, and ours is looking beautiful," he explained.

Photographer: Tiffany Hagler-Geard, August 2013.



Blowing Dust Across the Road, Oklahoma Panhandle

Photographer: Dorothea Lange, June 1939
LOC collection # 8b32337
<http://www.loc.gov/pictures/search/?q=8b32337>



Blowing Dust Across the Road South-West Kansas

Photographer: Tiffany Hagler-Geard, May 2013.



Dry Sorghum fields Greenwood County, Kansas

Photographer: John Vachon, November 1940.
LOC collection # 8c18257
<http://www.loc.gov/pictures/item/fsa2000042432/PP/>



Dry Corn Fields Lakin, Kansas

Photographer: Tiffany Hagler-Geard, May 2013.



Tom Reed, Hog and Cattle Farmer, on a Farm his Father Started in 1890 after Moving from Iowa near Lexington, Nebraska.

Tom Reed recovered from the 1930s drought and was able to hold on to his farm, but for the many farmers that didn't, losing a decades-old family farm left them feeling like they'd betrayed their ancestors and robbed their children of their birthright. Those who went through this ordeal often dealt with the grief, guilt, and despair in silence.

Photographer: Marion Post-Wolcott, 1941
 LOC collection # 8c31813
<http://www.loc.gov/pictures/item/fsa2000040368/PP/>



Justin Greer on his Farm in Deerfield, Kansas.

Water levels in the reservoir near Deerfield, Kansas, have dropped significantly in the past ten years. As a result, water can't reach the Greer farm anymore and like many other farms in the area, relies solely on rainfall for irrigation. Still, Justin Greer quit his job at a farming equipment manufacturer four years ago to work on the farm that has been in his family for generations. Because of the lack of sufficient rainfall, Greer was unable to grow one successful crop during his first three years as a farmer, and only survived by supplementing his income with off-farm employment and crop insurance money.

Photographer: Tiffany Hagler-Geard, August 2013.



Cowboy Petting his Horse, Cattle Ranch Near Spur, Texas.

In the midst of the Dust Bowl, there wasn't enough water for horses or other farm animals. Many ranchers and farmers chose to shoot their animals rather than watch them die a slow and painful death from thirst.

Photographer: Lee Russell, May 1939
 LOC collection # 8a26236
<http://www.loc.gov/search/?in=&q=8a26236&new=true&st=>



Cowboy Garrison Panzer Petting his Horse Outlaw, Lakin Kansas.

During periods of drought, cowboys like Panzer can't grow their own horse feed. Buying hay from outside the drought stricken area is expensive, so some horse owners are forced by the financial strain to sell their animals.

Photographer: Tiffany Hagler-Geard, August 2013.



Cattle at the Feed Trough, Casa Grande Valley Farms, Pinal County, Arizona.

In 1935, the Drought Relief Service bought cattle in counties designated as emergency areas for \$14 to \$20 a head. Half of the cattle was unfit for human consumption and was consequently destroyed. Cattle that could be used as food were distributed to families nationwide. As painful and difficult as it was for farmers to give up their herds for low prices — a cow could usually fetch around \$50 — the cattle slaughter program helped many ranchers avoid bankruptcy.

Photographer: Lee Russell, August 1940.
 LOC collection # 8a28388
<http://www.loc.gov/pictures/search/?q=8a28388>



Cattle in a Feedlot in Lakin, Kansas.

The 2010-2013 drought deeply affected the beef industry in Kansas and Texas. A lack of rain meant a shortage of grass for grazing and feed made from rain-dependent crops such as corn and sorghum. Several feedlots were forced to close down, and often, when a feedlot closes whole local economies grind to a halt.

Photographer: Tiffany Hagler-Geard, May 2013.



Farmer John Holton and His Wife, Southwest Kansas.

Women were an integral part of agriculture until the mechanized farming became common during the 1950s and 1960s. While their husbands were out working in the field, they kept house, tended vegetable gardens, and looked after chickens and the cows.

Photographer: John Vachon, October 1938.
 LOC collection # 8b29469
<http://www.loc.gov/pictures/item/fsa1998021313/PP/>



Farmer Tom Vincent and His Wife Cookie in Their Home in Lakin Kansas.

Today, farmers' wives remain instrumental to the survival of the American farm, but not in the way one might expect. They often have full-time jobs off the farm that help sustain operations. Besides bringing home the necessary extra income, their jobs ensure families have health insurance—something most farmers wouldn't be able to afford, especially during long periods of drought.

Photographer: Tiffany Hagler Geard, August 2013.



NEW ORLEANS' JAZZ MUSICIANS A DECADE AFTER HURRICANE KATRINA

By Bruce Boyd Raeburn

IN NEW ORLEANS there is a saying: "Hurricanes come and go, but potholes are forever." Residents adapt to the hazards that define their environment—from the inconvenience of dilapidated streets to devastating floods from hurricanes—by necessity.

When Hurricane Katrina struck on August 29, 2005, it destroyed 80 percent of the housing in New Orleans, killed nearly two thousand people, and displaced almost half a million—it was a cataclysm of spectacular proportions. Yet a decade after the storm, many of the city's jazz musicians question whether Katrina's traumatic impact was as great of a threat to their welfare as the more mundane work-related challenges they face every day.

Concern for the survival of the city's internationally acclaimed musical traditions diverted attention to the cultural impact of Hurricane Katrina. The total evacuation of the city ceased all musical activity for more than six weeks, and there was uncertainty about when it might be restored. Jazz musicians who abandoned their homes or who were on tour when disaster struck found themselves in limbo, wondering if their families and the neighborhoods that had nurtured their craft had survived. Reporters focused on the flooded Ninth Ward, one of several neighborhoods known as "cultural wetlands" because of their vibrant brass band funerals and "second line" parades. These traditional festivals were now at risk, hanging in suspended animation. Although few musicians died during Katrina, 90-year-old drummer John Robichaux drowned in the Ninth Ward. He was a revered elder, a stalwart of the New Orleans Ragtime Orchestra, and a victim of the inadequacy of the city's evacuation planning. For many observers, musicians represented what was best about the city, so their fate became the gauge of both loss and recovery.

Today fears that jazz might not survive Katrina's catastrophic impact on the city's cultural economy have seemingly abated, thanks largely to the gradual resurgence of community-based second line parades in 2006 and the restoration of cultural tourism in 2008. Yet there is a growing impatience among musicians with the economic and social problems that predated the storm: low pay, lack of benefits, questionable noise and zoning ordinances, and police repression of culture bearers. Like blame for the inevitable potholes, musicians and their supporters attribute these problems to negligence by city officials—but the sense of urgency that now motivates them to reform the environment in which they operate came from Katrina, and it appears to be here to stay.

PRESERVATION AND PRAXIS

Everyone who evacuated the city due to Katrina experienced uncertainty about the future and contemplated potential loss, but for jazz musicians it led to clarification of their role in society. Because the city's economy depended so heavily on cultural tourism after the oil bust of the 1970s, what the musicians mulled during their exile (aside from housing situations, schooling their children, and earning a paycheck) had special civic implications—how could they revive and preserve the indigenous, traditional musical culture that sustained both their identities and the economy? Resumption of performance, with a renewed sense of agency that cast musicians as guardians of communal heritage (Porter 2013; Sakakeeny 2013), was the key to recovery. Two related trends have developed. The first is the substitution of victimization narratives with commentary from highly visible musicians—New Orleans



© Original photo by Bruno Bollaert

“jazz ambassadors” who express themselves passionately on social and economic issues. The second is the emergence of grass-roots coalitions that unite academics, musicians, club owners, and urban planners to advocate for musicians. These coalitions use aggressive public relations campaigns that include demands for greater transparency in shaping city ordinances related to music.

PROFILES AND PROMOTION

In a sense, every New Orleans player who toured, recorded, or worked on media projects after the storm was marked by the news coverage that attended it, much of which portrayed them, at least initially, as victims. The challenge facing local jazz musicians was therefore to tell a different story, one of cultural resilience and rejuvenation, and to communicate their determination to improve working conditions.

For some, pre-existing celebrity provided extra leverage to their ambassadorship. Grammy award winning trumpeter Wynton Marsalis, for example, was appointed to the Bring New Orleans Back Commission’s cultural committee in late 2005. This gave him official clout as a spokesman, while the committee enjoyed the enhanced visibility of his stardom. Marsalis was a media natural who combined poise with a mastery of sound-bites to present the city’s indigenous cultural traditions as not only essential to locals but also as heuristically valuable representations of African-American contributions to the American Dream.

Marsalis didn’t just “talk the talk” on camera, he made real world efforts to promote cultural restoration. Despite his busy schedule with Jazz at Lincoln Center in New York City, he returned home often to support the rebuilding ef-

forts. On Martin Luther King Day in 2006, he gave a jazz concert and sermon to the combined student bodies of Tulane, Loyola, and Xavier universities. In April of that year, he debuted an extended work, co-composed with Ghanaian master drummer Yacub Addy to open the revived French Quarter Festival. Marsalis’ assignment as cultural

MARSALIS DIDN’T JUST “TALK THE TALK” ON CAMERA, HE MADE REAL WORLD EFFORTS TO PROMOTE CULTURAL RESTORATION

correspondent for CBS News, which he used to showcase local jazz musicians during the 2013 Super Bowl festivities, further expanded his ability to portray New Orleans jazz and its practitioners as national treasures.

While Marsalis was able to capitalize on his fame to link jazz with recovery, clarinetist Dr. Michael White’s jazz ambassador profile derived from public fascination with his progress in overcoming misfortune. White’s house was adjacent to the catastrophic London Avenue Canal breach and he lost everything that would not fit into his car when he fled. That included 40 instruments, manuscripts of original compositions, and numerous one-of-a-kind taped interviews with veteran musicians, some of whom were his relatives. After several months in Houston caring for family members, he returned to New Orleans and lived in



John Robichaux (1977). © Harriet Blum. Courtesy of Hogan Jazz Archive, Tulane University.

a FEMA trailer on the Xavier University campus, where he holds the Charles and Rosa Keller Endowed Chair in the Humanities. White was too busy to be seen as an object of pity—and the consensus among colleagues is that his playing reflects the expanded emotional range that comes from being a Katrina survivor.

White recapitulated his ordeal in *The Journal of American History* in 2007, along with numerous interviews for National Public Radio and television, such as Spike Lee's *When the Levees Broke* (2006) and HBO's *Tremé* (2010). He also began a series of weekly tutorials with members of the Hot 8 Brass Band, a group of younger musicians who had experimented with brass band/hip hop fusions before Katrina. Afterwards, they wanted to connect with traditions they had previously rejected to learn about the repertoire and playing style from a master. Despite the fact that he criticized new wave brass bands as compromising tradition, White embraced the opportunity to exchange ideas with Hot 8 and to understand their attraction to experimentation (Raeburn 173, 180). For the musicians involved in these exchanges, jazz provided a coping mechanism

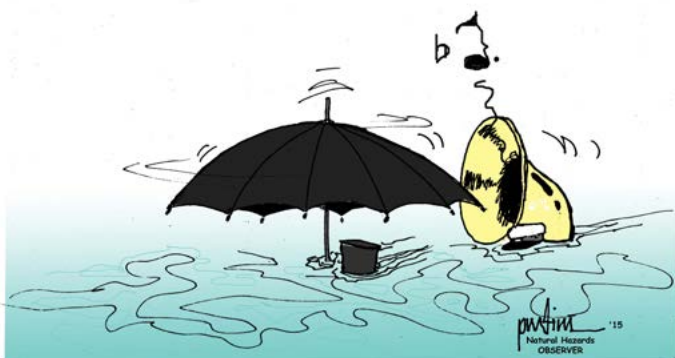
that allowed them to rebuild their shattered lives.

White and Wynton sometimes operate as a tag team. In January 2014, they collaborated on a concert/lecture on jazz origins at Harvard University. In May, White received the President's Medal at Tulane University's graduation ceremony, Wynton gave the commencement address, and then they performed together. Their approach to recovery has been a simple one—live life to the fullest, taking advantage of every opportunity for growth. The accomplishments of Marsalis and White are notable and inspire younger musicians to perfect their craft by deepening their appreciation of the history of struggle behind the music. Yet while these high-profile jazz ambassadors have played a key role in restoring New Orleans, New Orleans has yet to reciprocate.

POLITICS AND PARTNERSHIPS

There is growing evidence that the reinvigorated political consciousness among musicians following Katrina could lead to a serious examination of social and economic problems that complicate their daily lives. Musicians are now gathering and deploying statistics (a practice unheard of prior to Katrina) to bolster their demands for reform. During a panel discussion about working conditions for local musicians held at the annual Southern Labor Studies Association conference in March 2013, an audience member representing the nonprofit Sweet Home New Orleans gave the mean income for New Orleans musicians as a shockingly low \$15,000 a year, which reconfirms the adage "don't give up your day job." The panel consisted of guitarist and bandleader Deacon John Moore, president of American Federation of Musicians Local 174-496, clarinetist Evan Christopher, pianist and Tremé cast member Tom McDermott, and vocalist Mischa Lake. In a very lively exchange, they debated issues pertaining to declining union membership and the impossibility of effective collective bargaining in a right-to-work state, the perception of musicians as cultural tourism service industry workers (ineligible for benefits), legal obstacles such as zoning and noise ordinances, and the salutary but often erratic effects of projects like Tremé on the fortunes of local musicians. The spirit in the room was positive and animated by what appears to be an emerging consensus on the need to get involved, to get organized, and to lobby for a better deal for musicians.

Such conversations have become routine since the organization of the Music and Culture Coalition of New Orleans (MACCNO), an alliance of musicians, scholars, urban planners, nightclub proprietors, and concerned citizens. MACCNO's motto is "Music Is Not a Crime" and among the problems the group addresses at its monthly meetings are police harassment, widespread economic instability, and disenfranchisement of the cultural community. Assisted by journalist Larry Blumenfeld (who used post-Katrina Soros Foundation funding to report on New Orleans musicians), MACCNO has been building a reputation as a fully-engaged and articulate force in developing an agenda for reform. Their aim is to develop policies that



will benefit New Orleans musicians broadly, enhancing their value as economic assets for the city and strengthening jazz traditions. As acknowledged spokesmen for their colleagues, Marsalis and White have demonstrated that New Orleans jazz musicians can command respect and attention. Now it's time to see what the rank and file can do.

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Call for Submissions

The *Observer* invites readers to submit items of interest for publication in upcoming issues. The *Observer* is undergoing a makeover and many more exciting changes are in the pipeline. Throughout this process we would love to hear from you. All comments and suggestions are welcome.

Our mission is to close the gap between scientists, policy makers, and practitioners by providing coverage of disaster issues, recent disaster management and education programs, hazards research, political and policy developments, resources and Web sites, upcoming conferences, and recent publications. We are looking for papers and field reports that help narrow the aforementioned divide. In addition we are looking for book reviews that contribute to the debates and discussions in the field of disaster research.

The deadline for the next issue of the *Observer* is April 30, 2015.

Items of interest can be sent to Elke Weesjes
elke.weesjes@colorado.edu (email).

A TORNADO, A TOWN, AND A TEAM

FOOTBALL AS A CATALYST FOR DISASTER RECOVERY

By Jack L. Rozdilsky and Nick Swope



Many of Washington's homes were devastated beyond repair after the November 2013 EF-4 tornado. © Rozdilsky (04/15/14).



Scenes typical of the residential destruction left in the wake of the tornado. © Rozdilsky (04/05/14).

ON SUNDAY MORNING, November 17, 2013, a devastating tornado tore into the Peoria metropolitan area impacting Washington, Illinois, (pop. 15,135) leaving three fatalities and 121 injured people. The town's residential areas were ravaged, with over 1,250 homes severely damaged or completely destroyed. The National Weather Service rated the tornado at EF-4 with wind speeds of 190 miles per hour and a path width of a half-mile (National Weather Service Lincoln Forecast Office 2014).

Immediately following this disaster we proposed a Quick Response project to study social aspects of recovery, with a special focus on the Washington Community High School Panthers football team. A case study of the initial months of the town's disaster recovery was supported by field observations and interviews of people involved in the disaster recovery and the football team (Swope and Rozdilsky 2014). We explored questions such as: "Can a high school football team provide services to a disaster recovery effort?" and, "What are the specific types of services a high school football team can provide to the community during disaster recovery?"

FOOTBALL UNIFIES

On the day before the tornado's impact the Washington

football team defeated a competitor from Normal, Illinois, in an elite eight level playoff bracket game. Such post-season play is a very big deal in the life of a small Midwestern town. On Sunday, November 17, the victory celebrations had not yet finished when the tornado struck.

Many team members lost everything as the town was turned into chaos by the tornado. While no team members lost their lives or were seriously injured, all the players and coaching staff were deeply impacted in ways both large and small. Less than a day after a high point in their young lives, Panthers players were direct witnesses to the violent destruction of the environment they had called home. The players saw their homes and their fellow players' and students' swept away. It was a tremendous shock.

During the week following the tornado people associated with the Panthers realized that playing in a state semi-final game six days later may not be feasible. But by early Tuesday, the collective decision had been made by the players and coaches that the Panthers would take to the field on the next Saturday.

On November 23, the Panthers took to the gridiron in Springfield to face Sacred Heart-Griffin for the State Class 5A Final Four semi-final game. While playing respectfully, the Panthers were outmatched by their opponents. There was no storybook ending here with the Cinderella team



Members of a high school football team can serve as a community resource in times of disaster recovery © Rozdilsky (10/27/14).



As the tornado disaster recovery efforts were frozen in place during the harsh winter of 2013-2014, the Panther's football team provided inspiration during the recovery's winter lull. © Rozdilsky (02/12/14).

from the down-on-its-luck town emerging victorious. But the Panthers were not aware that they had started something that was bigger than the team itself.

Despite fierce sporting rivalries, using football as a source of unity, the opposing Sacred Heart-Griffin team's supporters immediately organized to send semi-truck loads of relief supplies to Washington in the tornado's wake. In addition, the opposing team's fans saw to it that every resident of Washington who wanted to travel out of their disaster-stricken town to see the championship game at the state capital was given the opportunity to do so. First-class transportation, accommodations, and services were provided to Washington tornado victims. During the lunches and dinners surrounding the game, tornado victims were given more than \$75,000 in cash donations to take back with them.

Another indirect benefit of the activities surrounding the game was the creation of a venue for social interaction between disaster victims. After the tornado the devastation in Washington was so severe that neighbors had not been able to see each other since the disaster. Many victims were sheltered at different locations, and portions of the city remained inaccessible for days after impact. At the pre- and post-game meals, Washington residents had a series of impromptu meetings with friends and neigh-

bors. At that early point in the recovery these small-scale interpersonal meetings and opportunities for information exchange proved to be important for the coordination of recovery tasks. Further, the opportunity for gathering served the more abstract, yet critical, needs for emotional support from peers and kinship networks. If the Panthers had not played that Saturday, or if Sacred Heart-Griffin had not provided the venue, this circumstance would have never happened. This early opportunity for a large portion of the disaster-stricken community to convene in a safe, supportive environment helped mend the torn social fabric of Washington.

TEAM LIFTS TOWN

On the very cold late evening of Saturday, November 23, the dejected Panthers and their supporters returned to Washington to be greeted by the applause of exhausted first responders who had been on duty for six days. While it was an overall grim situation, the silver lining was that the Panthers had started a recovery momentum much larger than the team itself.

As the long winter essentially put physical recovery on hold, the social momentum created by the team carried the town through the difficult winter months. This momen-



As Washington's residents rebuilt their homes during autumn 2014, Washington Panthers symbols were used in signs to proclaim "We are home" © Rozdilsky (09/23/14).



This commemorative helmet was signed by 2013 Panthers team members who played in the championship game despite the hardships of the tornado disaster © Rozdilsky (07/24/14).

tum can be explained by highlighting a few of the intangible and tangible services the football team provided to support recovery.

An example of an intangible service that the team provided was their role as models for pro-social community attitudes. The Panthers' story was featured on numerous media outlets. ESPN, The Weather Channel, ABC's Good Morning America, and NBC's Today Show all ran features about the football team's actions of not giving up despite the tornado. In one of those media features, a Washington resident was interviewed on NBC's Today Show saying, "I mean we got a bad ass football team that is 11 and 0, then (we are) going to play in the semi-finals this weekend, so hopefully that picks us up a little bit" (Cantore 2014).

As an example of the tangible services provided, the team acted as both ambassador and fundraiser for the tornado-stricken town. The common interest of football players reaching out to other football players in need served as a conduit to develop a relationship with the National Football League (NFL) franchise of the Chicago Bears. Not just during the immediate aftermath of the tornado, but for the entire year following the disaster, the Bears continued to visit the Panthers team and provide direct physical and financial assistance to the disaster stricken town. The story of a high school team working with a NFL team attracted broad interest in the large Chicago media market. As the attention from the November 2013 disaster faded from public interest in the spring and summer of 2014, this additional exposure for the town was very important to remind potential volunteers and donors from Chicago that the work in Washington was far from complete. In addition,

the Chicago Bears' charitable initiatives provided a much needed boost to Washington with a contribution of more than \$210,000 towards disaster recovery.

SILVER LININGS

The cultural motif of high school football being an integral part of community life was widely popularized with Harold Bissinger's 1990 non-fiction book *Friday Night Lights*. Citing a phrase typical of the sentiments of the book: "As I stood in that beautiful stadium on the plains week after week, it became obvious that these kids held the town on their shoulders" (Bissinger 2000, p. xiv).

While one does not wish for any community to be thrust into a situation where teenagers are forced to become adults overnight, tornadoes do bring about such circumstances for small towns. The authors suggest that when Midwestern towns are struck by tornadoes an important, perhaps underutilized, resource for recovery are high school football teams. Given the work of coaches, parents, and others the foundation of common pro-social, community-centric values associated with a membership on a small town football team creates useful skills. A byproduct of these football team-orientated community skills can be teenagers supporting disaster recovery.

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In March 2015, 16 months out from the tornado, Washington's residential areas are over 75% rebuilt. © Rozdilsky (03-07-15).



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A resident of Braithwaite in the now-abandoned ground floor of his home. Following repeated flooding in Hurricane Katrina and Isaac, the resident moved all of the home's essential functions to the upper floors and now uses the ground floor exclusively for storage. © Zachary Lamb

FLOOD VULNERABILITY AND THE PARADOX OF PROTECTION AT THE EDGES OF NEW ORLEANS

By Zachary Lamb

IN SOME NEIGHBORHOODS, homes sat for days in dark oil-slicked iridescent water up to the tops of their doorjamb. In other areas, the streets were wet and stray tree limbs or poorly secured signs were scattered over the ground, but homes and businesses were largely unscathed.

These enormously uneven impacts of levee failures across New Orleans during Hurricane Katrina have been well documented. (Jonkman et al. 2009; Seed et al. 2008; Myers, Slack, and Singelmann 2008; Hartman and Squires 2006; Colten, Kates, and Laska 2008). Less widely examined and discussed, however, was the fate of communities that lay just outside of the city's protective infrastructure.

In 2014, I went to south Louisiana to get a better understanding of vulnerability and adaptation in three of the "outside" communities: the Batture, a semi-formalized cluster of homes on the flood plain between the Mississippi river and the Mississippi River levee; a waterfront suburban subdivision called Venetian Isles; and the rural town of Braithwaite. Through a number of methods including in-depth interviews and on-the-ground observations, I tried to learn more about how communities perceive their vulnerability to flooding, what they think the role of government and individuals are in mitigating flood

risk, and what steps they take to reduce their vulnerability.

Before the fieldwork began, my review of the existing literature pointed me toward a bewildering number of potential hypotheses. Drawing from the natural hazards literature (White 1945; Colten, Kates, and Laska 2008), I thought I might find evidence of a reverse levee effect, where residents outside the levees are acutely aware of flood hazards and thus especially well-adapted. My reading in political-ecology led me to think I might find communities outside of the levees that were either forced into vulnerable environments by socio-economic marginalization or facilitated in living in a hazardous environment by political and economic power distribution (Pelling 1999; Collins 2010). Other sources indicated that the people who lived outside the levees might have chosen to opt out of levee protection because of a distrust of the institutions and technologies of the state (Scott 2009; Erikson 1994). With all of these potentialities rattling around in my mind, I went to New Orleans to see what I could find out by talking to people and looking at the ways they built their homes and how they lived outside the levees.

OUTSIDE THE WALLS

If you had been in any of the three case study commu-

nities on the morning of September 1, 2005, you would have seen signs of a strikingly different experience of the hurricane and flooding that beset the region earlier in that week. The damage was minimal in the Batture; the willow trees that surround the houses were perhaps a bit less richly leaved. A few houses had lost asphalt roofing shingles in the storm winds. Otherwise, the small enclave of a dozen houses perched high on wooden pilings on the outside of the Mississippi River levees was largely spared from damage in the storm and flooding. By comparison, 80 percent of the area inside the ring of levees that fortify the city lay under fetid waters, iridescent with toxic chemicals from the surrounding industrial and urban landscape (Van Heerden 2007).

Across the flooded city, some twenty miles to the east, sat the waterfront suburban neighborhood of Venetian Isles. Like the Batture, Venetian Isles lies outside of the engineered hurricane protection levee system. Here the effects of the storm and flooding were much more variable. Elevated houses with only superficial damage stood next to ragged bunches of timber pilings that only days before had supported houses and docks. In Venetian Isles—like much of the coast east of New Orleans—the storm had brought ashore a massive surge of Gulf water that swept away thousands of homes and businesses. As quickly as the storm surge swept in, it was gone again, its retreat unimpeded by levees. Some 16 miles further south, on the outside of the southeastern levee system, the town of Braithwaite also showed highly varied impacts from the flooding. The town's small, parish-maintained "back levees" had overtopped, leaving houses in low-lying areas underwater but sparing those on the higher ground by a natural ridge by the Mississippi River.

While my initial research in these three communities (conducted nearly nine years after the flooding caused by Hurricanes Katrina and Rita in 2005) included conversations with a range of experts, my primary objective was to learn from residents. I wanted to learn why, in spite of the obvious hazards, did they choose to live where they did? How did they perceive risk in their communities as compared to those inside the levees? Did they consider risk mitigation to be the primary responsibility of individuals or the government? And how did they adapt their behaviors, livelihood, and structures to be more resistant and resilient in the face of repeated flooding? In addition to the expert and resident interviews, I also conducted extensive site and architectural analyses to understand the spatial and physical components of the hazards and adaptations in the three communities. Drawing from Joseph Heathcote's notion that architecture can be read "as both a register and a generator of cultural meaning," I tried to "read" the architectural forms of homes to understand how they reflected and shaped the residents' sense of vulnerability (2007).

CHOOSING RISK

Most residents I interviewed expressed a strong preference for living outside of the levees. The specific reasons for

their attachment, though, varied considerably from site to site. Batture residents prized the quirky architectural character and aesthetic beauty of their riverside location. They also frequently cited their community's location—close to, but still separate from the city—as a virtue. In Venetian Isles, residents referenced the ready access to fishing and boating as well as a sense of semi-rural calm as their areas' strong points. The residents of Braithwaite nearly all mentioned a deep generational attachment as the reason they persist despite flood vulnerability.

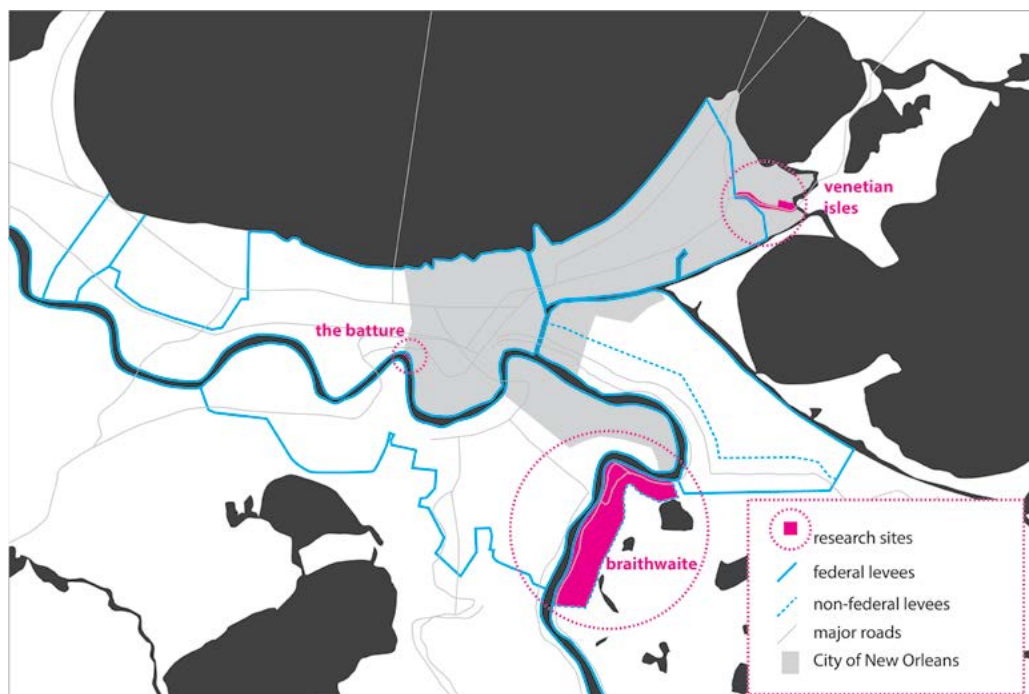
ATTITUDES TOWARDS GOVERNMENT AND LEVEES

Some of the most significant initial themes to emerge from my interviews with residents in the three study communities related to widely varying attitudes towards the role of government in flood risk mitigation in general and towards levees in particular. For residents of all three communities, levees and floodwalls served as powerful spatial boundaries which physically as well as symbolically separated them from the communities on the inside. Residents spoke of being "locked out," "walled off," and "shut off" by the flood barriers, which had been reinforced following the 2005 floods. Several referred to the section of the hurricane protection system that separates Braithwaite from St. Bernard Parish as "The Great Wall." One resident expressed this widely held frustration with the wall, joking that she wished someone would "put some dynamite" in it. For many residents of outside communities, the massively reinforced flood walls and gates that mark the transition from territories protected by levees to those outside have highlighted both their relative exposure to flood vulnerability and their symbolic separation from inside residents.

The dominant attitudes expressed by residents with regard to flood control infrastructure varied considerably according to the position of settlements with respect to levees. Three dominant attitudes regarding levees can be distilled as: potential savior, destructive villain, and neutral guide.

For many residents, particularly in Venetian Isles and Braithwaite, expanding or increasing levee protection was the answer to their flood hazard problems. Several residents of these communities echoed the sentiment expressed by one Braithwaite homeowner that residents had "done what [they] were supposed to do" in purchasing flood insurance and following current building standards and that it was up to the government to provide the necessary level of structural protection to protect the area. Although this resident said, "If they [the parish government] need to put a wall up, they need to put a wall up," she also expressed skepticism that the parish would take such measures.

For this resident and others like her, the lack of adequate flood protection led them to feel that their community had been marginalized by infrastructure planning processes that were unresponsive and corrupt at best and openly hostile to them at worst. This distrust of government is perhaps not surprising given South Louisiana's long and



Each of the three study sites lie immediately on the outside of the hurricane protection levee system surrounding New Orleans.

troubled history of uneven spatial development, political corruption, and racial animus related to flooding (Conaway 1973; Jeansonne 2006). This sense of opposition and suspicion between rural residents and the largely urban structures of state power has reverberated through some communities for generations since at least 1927, when the Mississippi River levee in rural St. Bernard Parish were intentionally breached to prevent flooding in New Orleans (Barry 1997).

While some residents saw levees as the potential saviors of their communities, others saw these structures as largely responsible for creating their plight. One Braithwaite resident expressed a common belief that the design of the flood control system to protect areas inside the levees had, in fact, exacerbated flooding in their outside communities. He told me that because of the alignment of the levees, floodwater are pushed into their communities, saying “It can’t go no where else... What they done to help some people actually made it a lot worse here.”

Whether they saw levees as part of the problem or part of the solution, many residents expressed deep distrust of the U.S. Army Corps of Engineers, the federal agency responsible for their design and construction. In many cases this distrust took the form of questioning the validity of the technical knowledge behind infrastructure decisions. One resident expressed this common view, telling me, “I am not a big fan of the Corps of Engineers. You know, a lot of the projects they do, even with all of their knowledge, they just, they seem to make things worse.”

While residents of Venetian Isles and Braithwaite tended to see levees either as flood-worsening villains or as potential saviors, residents of the Batture offered a distinctly different set of perceptions. Living as they do on the narrow strip of land between the levee and the waters of the Mississippi River, Batture dwellers tended to view the le-

vees as creating the niche that allows their community to persist along the industrialized waterfront. In describing the Batture dwellers defense against a legal challenge by a New Orleans lawyer who claims that his family owns the land on which their homes are built, one resident told me, “You can’t own batture land. You can claim it; you can’t own it.”

Batture dwellers, as well as a few residents from the other two communities, described the levees as a benchmark against which they measured their vulnerability. Several residents said they had made decisions about the elevation of their homes based on the elevation of the levees. One resident built his house so the elevation of the floor roughly matched that of the level of the levee. He explained to me that he did not think the Corps cared whether or not his house flooded—he assumed they would open upriver spillways to keep the river from overtopping the levees regardless of his flood risk. Another Batture resident echoed that thought, telling me that he had elevated his house with respect to the levee so that, “The day I get water in my house, the city of New Orleans is gone.”

Given the diversity in attitudes expressed by residents towards levees, it is not surprising that they held widely diverging views about the safety of their communities compared to those inside the levee’s protection. While many residents recalling the recent levee failures, said they considered their communities to be at considerably higher risk than those inside levee protection, some described communities inside the levees as at higher risk than those outside. “If a hurricane comes, I’m outside the levee, I’m safer on this side than I am on the other side,” explained one Batture resident. “Because if a hurricane floods the city, the water don’t go out. The water goes right back down the river. I’m going to be fine.”

If we characterize these first two attitudes as, “safer in-

side” and “safer outside” respectively, there was a third group of residents who feel that no place is safe. One Braithwaite resident told me that he figured that moving away to avoid flood hazards would be pointless since every community faces some hazard. Referring to recent floods in Colorado and tornados in Alabama he said, “It doesn’t matter where you live. Wherever [you] go, [you] would run into something.”

Although residents of the three communities almost universally hold a deep appreciation of the spatial and cultural separation afforded by living outside the levees, they hold a wide range of views about the safety of their communities and the responsibility of the government in reducing their exposure to flood hazards.

ADAPTION

My respondents described and displayed a huge range of behavioral and physical adaptations to the hazards of life outside of the levees. They used an array of adaptations to reduce the vulnerability of their homes to storms and flooding, including everything from inventing home-grown structural reinforcement methods to using flood tolerant materials, from installing elaborate home electric generator systems to elevating spaces and equipment above anticipated flood heights. It is the last of these measures, elevation, that is the most discussed and the most heavily incentivized adaptive strategy in use.

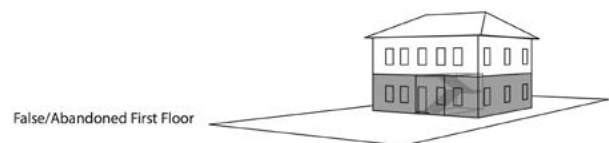
Though the most widely used administrative standard for building elevation is the base flood elevations (BFEs) as defined in Federal Emergency Management Agency Flood Insurance Rate Maps (FIRMs), I found that residents weighed a range of physical, economic, and social factors in deciding how high to build or elevate their homes. Among the factors resident’s said encouraged them to build higher were distrust of levees and other government flood protections; pressure from loved ones who refused to return to a flooded home unless it was substantially elevated; a desire to build above the elevation of nearby levees; and first or second-hand experience of extreme flooding events.

Referencing the importance of experiential knowledge, one Venetian Isles resident told me, “I took all the information that I could when I decided to build. I knew the old man who was still living there [next door]. He showed me where the water got to during [1969’s] Camille on his property...He showed me where it came on his slab and I built 20 inches higher. And I figured I was safe, because Camille was a pretty bad hurricane.”

Among the residents who referenced the importance of family and social pressure as a primary reason to elevate, one Braithwaite resident told me, “That’s how I convinced my wife to come back. I told her that we would bulldoze the house and build a house where it wouldn’t flood anymore.”

Just as residents cited many informal and social motivations for building higher, there were also a wide range of reasons for not elevating, including cost, comfort and mobility; increased wind hazards; a fear of appearing un-

HOUSE



CAMP

Structure elevation is perhaps the most consequential and among the most common adaptations adopted by residents of settlements outside of the levees to reduce their vulnerability to flooding. Residents’ decisions regarding whether and how to elevate their homes were impacted by a complex constellation of social and economic factors. Competing motivations and rationales lead some residents to disguise the extent to which their homes are elevated. Aspirations to avoid the appearance of living in a “camp” (the term used to describe particular ad hoc vernacular building types in the region) were common motivators in some areas, but not in others.

neighborly to non-elevated neighbors; and social stigma against certain kinds of elevated structures.

Several residents expressed negative bias against forms of home elevation that they associated with what they call camps—the ad hoc elevated structures often used for fishing and hunting in the region. One Braithwaite resident explained her decision to build a stage front-like false first story wall to hide the pilings on her newly elevated house saying, “I want it to look like a house. I didn’t want it to look like a camp.”

Other residents of the study communities spoke of a desire to build “New Orleans-style” or “French Quarter-type” houses despite the higher levels of flood hazard they



An elevated home outside the southeastern levees. While this structure makes no attempt to minimize the visibility of its elevation, other such pile-supported structures in the area go to great lengths to disguise their elevation through such methods as construction of earthen berms and stage set-like false ground floor walls.

faced. This anti-elevation social bias may at least partially explain the surprising number of homes in Braithwaite and Venetian Isles that are either built at-grade or atop earthen mounds to obscure their elevation.

While some residents of these two areas expressed anti adaptive biases against elevation, residents of the Batture have proudly adopted the “camp” identity of their community. They refer to their homes as Camp 1, Camp 2, etc, and many rambling Batture homes embrace the ad hoc material and formal language of bayou fishing camps. The Batture is a remnant of a once-larger community of informal riverside dwellings built by economically and socially marginalized populations. Its riverside location and unique sense of place has, in recent years, attracted a more diverse set of residents including teachers, doctors, artists, musicians, and maritime workers. For these residents, the dynamic landscape, ramshackled appearance, and aesthetic differentiation from surrounding communities are a large part of its allure.

Even as residents of the three study communities demonstrated a wide range of household-level adaptations to flooding, several residents emphasized the limitations of such individual measures in the face of widespread flooding. One Batture resident told me, “Even though I’m high and I can’t have a flood... like Katrina, I didn’t have nothing here. But what good is it if I’m the only one left in the city. I can’t go to stores or bars. The musicians are gone.”

Similarly, another Braithwaite resident highlighted the inability of household-level adaptation to the safeguard the social assets of the community, saying, “And even though we are built up to where we won’t have to worry about the flooding any more, we still want neighbors.”

For these residents, individual and household-level adaptation was necessary, but not alone sufficient, to allow their communities to adapt to and recover from major disasters.



A Braithwaite house rebuilt after flooding from Hurricane Isaac in 2012. Though the house is built nearly twenty feet above the surrounding natural grade, the homeowners opted to built atop an earthen mound and to build a front wall across the uninhabited lower level so as to minimize the appearance of their elevation.

CONCLUSIONS AND IMPLICATIONS

While these interviews with some twenty-three residents of outside communities are not sufficient to draw sweeping conclusions, they do point towards some exciting areas for future research. While some lamented what they saw as a lack of flood protection attention from the government, nearly all of the residents with whom I spoke held a deep appreciation of their community. In general, they perceived them as quite distinct from neighboring areas inside the levees and prized the aesthetic and cultural amenities that came from their outside position. I did not find evidence of systematic or widespread marginalization of socioeconomically vulnerable populations in either their interview remarks or in my initial comparison of the demographics .

We can, however, see the signs of a reverse levee effect both in their accounts of past flooding and reconstruction and in the wide range of architectural adaptations they incorporate in their homes. Again and again in recent years, residents have been faced with the reality of flood vulnerability and the need to adapt. However, the widespread instances of less-adapted and maladapted homes suggest that such an effect is far from universal. Resident decisions about adapting their homes to flood vulnerability appear to involve a complex constellation of competing interests in which hazard mitigation was implicitly or explicitly weighed against a number of other factors. Notable among these competing interests were symbolic and aesthetic considerations about the appearance and construction of their homes that were integrally linked to their individual and social identities and aspirations.

Perhaps more than anything else, interviewing these two dozen people and spending time in their homes and communities, highlights for me the necessity of truly listening to the people who will be most affected by hazard mitiga-



tion infrastructure, program, or project. Only by taking the time to learn how people perceive and adapt to the hazards of their environment can we begin to understand how our efforts to shape or reduce vulnerability might play out.

As cities from South Louisiana to South Asia and beyond continue to propose and build flood protection infrastructure, it is essential that the perspective of those outside the zones of protection be a meaningful part of the planning and policy conversation.

The research discussed in this article is part of a larger multi-city project that will form the basis of my doctoral dissertation in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology. This exploratory research phase included 23 interviews (see Table 1) conducted in January and March of 2014 in the three case study communities. In addition to these interviews and associated site analyses, I conducted interviews with experts from government and non-governmental agencies, as well as academic experts in the area. This allowed me to develop a clearer sense of the recent history and ongoing policy discussions relevant to the lives and livelihoods of people living outside of the levees.

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Site	Batture*	Braithwaite	Venetian Isles	Total
Total Interviews	3	12	8	23
Male	3	5	6	14
Female	0	2	1	3
Couple	0	5	1	6
Total	3	12	8	23
Above Base Flood Elevation (BFE)	3	3	6	12
Below Base Flood Elevation (BFE)	0	9	2	11
Total	3	12	8	23
African-American	0	4	0	3
White	3	8	8	20
%African American	0%	33%	0%	
Area - Approx. %African American	0%	39%	0%	
Avg Length of Tenure (years)	19.5	42.7	30	30.7

*12 total households in the area.

Table 1. Interview Subjects and key data by Neighborhood

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ZACHARY LAMB is a doctoral student in MIT's Department of Urban Studies and Planning. His work focuses broadly at the intersection of public policy, design, and environmental change. His current research explores how flood protection infrastructure impacts how people perceive of and adapt to risk, specifically with respect to where and how they build. He is also co-founder and principle of Crookedworks, a research and design firm whose work was featured in the 2012 Venice Architecture Biennale and has received wide recognition including awards from AIA New Orleans, AIA Western Massachusetts, and the Animal Architecture Awards. Prior to his doctoral studies, Zach studied architecture at MIT and art history, architectural history, and environmental studies at Williams College. His previous work has included environmental policy analysis, green building and design, energy efficiency, climate change adaptation, affordable housing, and post-disaster community development.



From Academia to Practical Application and Back Again

INVOLVING UNDERGRADUATE STUDENTS IN HAZARDS AND DISASTER INTERNSHIPS

By Lori Peek

"Hey Dr. Peek! I never even knew there was such a thing as emergency management. Do you think that I could do an internship at the City of Fort Collins and learn more about this?"

"I was really excited to hear that you and other faculty work with undergraduates to provide them with research experiences or to connect them with disaster-focused internships. I really want to go to graduate school. Can I come to your office hours and talk to you about this?"

"I grew up in Mississippi and my family was affected by Katrina. It never occurred to me, though, that I could get involved in this field of hazards and disasters as part of my future. Could you please let me know what opportunities might be available to help me learn more and explore if this might be the career path for me?"

THE ABOVE QUOTATIONS are excerpts from emails that I have received from students at Colorado State University. These are representative and indicative of the types of inquiries I regularly find in my inbox. It was students' curiosity, excitement, and desire to engage with the local community that inspired our development of disaster-focused internships for students.

At CSU, like at many other institutions of higher education, we have a growing number of students who are interested in the human consequences of hazards and disasters. These students develop these interests for a variety of reasons, including, for example, having had a personal experience with disaster; being exposed to media coverage of major events; taking courses in this area; reading about the theoretical and practical implications of disaster planning, response, and recovery; and hearing guest lectures from researchers and local practitioners. This last point is especially important, as having direct contact with people working in the field opens the students up to an entire world of professional and academic possibilities that they may not have previously even considered.

Because students often learn the best by doing, and because we had the infrastructure in place through our sociology internship program, I set out to develop intern-

ship opportunities for students in collaboration with local emergency managers.

INTERNSHIP OPPORTUNITIES

In the summer of 2012, I mailed a letter to nearly 100 different emergency management and disaster-focused agencies and organizations in Colorado. In the letter, I explained how the internship process works at CSU and asked whether or not they might have space for an undergraduate intern, should a person become interested in that particular organization. Nearly one-third responded and agreed to be added to our potential internship list (it can be viewed here: <http://sociology.colostate.edu/docs/past-internships.pdf>). These individuals represented 31 different public and private-sector organizations working across the disaster lifecycle (from preparedness to long-term recovery and mitigation) in Colorado communities.

INTERNSHIP EXPERIENCES

Over the past three years, nine of our undergraduate students have chosen to work in emergency management focused internships through the City of Fort Collins Emergency Management and the Department of Public Health. The students are required to spend 150 hours in the organization of their choosing. Thanks to a strong collaborative relationship with our local emergency manager, Mike Gavin, we have established a model where we work together—faculty, student, and intern sponsor—to ensure that the intern is developing core knowledge, skills, and abilities, known as KSAs, through the internship experience. Those on the academic side are good at transmitting knowledge, but may know less about the day-to-day skills and abilities required within a given organization. This is the critical juncture where the internship model can be especially effective. And in order to bring the entire process to life, we have found that several key steps should be followed, more or less in this order:

- ensure the intern understands the academic expectations;

- facilitate an early meeting (or series of meetings) between the intern and the intern supervisor, to clarify goals and work expectations;
- develop a concrete work plan and schedule;
- connect specific tasks to broader knowledge, skills, and ability gains;
- establish a system for regular check in between the student, the academic supervisor, and the internship supervisor;
- end the internship with a culminating experience, where the intern prepares a presentation or portfolio, summarizing outcomes of the experience.

So what can emergency management interns actually do for themselves and for the organizations where they work? And what, in concrete terms, do they actually gain from the internship?

The CSU interns have been part of meetings that allowed them to see how organizations work, and how people work together within and across emergency management organizations. One intern noted excitedly that at her first meeting, she had the chance to “meet people from all levels of government working to reduce hazards risk.” She said later that she had no idea that there were so many different agencies involved, and that this helped her to better understand “what the textbooks were saying,” but that she did not fully “get it” until seeing the process in person.

Thanks to the intern supervisors, the students are often strongly encouraged to reach out and to network with people working in many different aspects of emergency management. This may be something as simple as encouraging the student to introduce him or herself to someone new at each meeting, or to more actively network to learn about new resources and opportunities.

Some of our most ambitious students have figured out how to connect their academic coursework to their internship, resulting in new opportunities and breakthroughs. One such example happened a couple of years ago, when Samantha LaFever, an undergraduate sociology major, took a course that exposed her to the growing number of “grandfamilies” – grandparents raising their children’s children. She became curious about whether this was an issue in terms of disaster preparedness and response, especially since she knew that children and the elderly are often considered among the most vulnerable in disasters. When she took this idea to her internship supervisor, he was equally intrigued and encouraged her to pursue this research and to see if she could come up with a tangible output. In the end, LaFever did such a great job that her supervisor took her to a conference where she had the chance to present her findings and recommendations to emergency managers. Later, LaFever said this was one of her “proudest moments” as an undergraduate and one of her “greatest learning experiences.”

Some of the best internship supervisors, like Gavin, not only encourage students to follow their passions, but also help them to identify new resources and opportunities that will help them grow as budding professionals. For instance, Gavin allows all of his students to use their required

intern hours to complete the Federal Emergency Agency’s Emergency Management Institute classes that help them dive into the lexicon of emergency management and use the terminology themselves. He also takes them to training sessions and other meetings, that help students increase their knowledge, build their skill set, and enhance their abilities and capabilities.

Students clearly gain a great deal from these internship opportunities. They regularly report that these experiences help them learn and grow. They develop new professional networks. They are exposed to different ways of thinking and acting. And they often become more confident, professional, and mature. In short, and as one recent intern said, “For the first time, I really felt like I was ready to have a real job!” And another wrote in her evaluation, “It is more than just the job skills I received. For the first time I actually feel focused and passionate about where I am going in my life. I think I can make a difference in this world, and this is the space where I want to be.”

The internship supervisors also get something out of the process. Obviously, there is some personal satisfaction associated with helping students to succeed. But even more than that, it helps them to “feel more confident about the future of emergency management in general.” The best students “bring new ideas and energy” to the office. They also can help complete mundane day-to-day tasks as well as more complex duties associated with the job.

In the end, we think this is a win-win for all involved, and look forward to continuing to build the program over future years.

This article was written in collaboration with Samantha LaFever, Sociology undergraduate alumna, Colorado State University, and Mike Gavin, Emergency Manager, City of Fort Collins, Colorado



Author

LORI PEEK is an Associate Professor in the Department of Sociology and Co-Director of the Center for Disaster and Risk Analysis at Colorado State University. She is author of the multiple award-winning book, *Behind the Backlash: Muslim Americans after 9/11*, co-editor of *Displaced: Life in the Katrina Diaspora*, and co-author of *Children of Katrina*. In addition to her post-9/11 and post-Hurricane Katrina studies, she has also conducted research on disaster preparedness among child-care providers in Colorado; youth recovery after the 2011 Joplin tornado; the potential physical and mental health effects of the 2010 BP/Deepwater Horizon oil spill and the effects of Superstorm Sandy on children and youth; risk perception and evacuation behavior among residents of the U.S. Gulf and Atlantic Coasts; disaster preparedness for persons with disabilities; and earthquake risk reduction practices in seven countries. Peek teaches classes on contemporary race and ethnic relations, the sociology of disasters, and qualitative research methods.



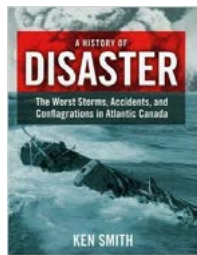
Strong, Safe, and Resilient: A Strategic Policy Guide for Disaster-risk Management in East Asia and the Pacific

Abhas Kumar Jha and Zuzana Stanton-Geddez (eds.), 2013
 ISBN: 978-0-8213-9831-9
 160 p., free download
 The World Bank

By Thomas Haase

This World Bank report reviews the principal risk-management activities undertaken throughout East Asia and the Pacific in recent years. Emphasizing the practical, the report highlights examples of global good practice and innovative products and offers recommendations for reducing risks and building resilience. After an overview of the risk environment in East Asia and the Pacific, the contributors examine region-relevant topics such as institutional development, community outreach, risk identification and reduction, emergency preparedness, financial protection, and sustainable recovery and reconstruction.

The report's value lies in its presentation. A casual read will reveal an assortment of information about historical disaster events, disaster management legislation and guiding principles, and projections about the future disaster consequences. The chapters are well-organized and contain sections that highlight the following: lessons learned during recent events; key messages for policy makers, where we are currently, where we want to be, and how the World Bank can help to promote disaster resilience. Additional resources, including an overview of meteorological services in East Asia and the Pacific, a list of World Bank activities in these regions and a glossary of key terms, are found in the appendices. For policy makers who must think strategically about resilience in East Asian and Pacific communities, or scholars who seek an introduction to disaster management issues in these regions, this report will provide a variety of useful insights.



A History of Disaster: The Worst Storms, Accidents and Conflagrations in Atlantic Canada

Ken Smith. 2014
 ISBN: 978-177-108-1757
 208 p., \$14,95
 Nimbus Publishing

By Wanda Headley

Natural as well as industrial disasters along Canada's Atlantic coast have ranged from seemingly small, almost forgotten events to those that live on as part of the country's heritage, captured in song and legend.

Author Ken Smith takes a historical look at 43 of the most deadly events to leave their mark on the region's cultural, emotional and social landscape. Too many disasters happened in the past 200 years to include them all, so only those in which at least 20 lives were lost made it into the book. Smith divides the book into three historical time periods: pre-1900, 1900 to 1950 and 1950 to present.

Disasters in the pre-1900 period consist of wildfires such as the ones that destroyed most, if not all, of the communities of Miramichi (1825), Fredericton (1850), and St. John's (1877, 1892), violent storms at sea that sent the *Violet* (1758) to a watery grave, and human-caused errors that cost the lives of over 500 *RMS Atlantic* passengers (1873).

Events that took place from 1900 to 1950 are a bit more varied with blizzards (1914), mining accidents (1917, 1939), tsunami (1929), building fires (1942), explosions (1917) and more. In addition to the mining disasters (1956, 1958, 1992), ravaging sea storms and Hurricane Juan, the 1950-to-present period includes the advent of airline crashes.

Although each story is short, Smith adds more than dates and statistics to his retelling of the events. Each event is given its own historical backdrop and Smith relates the social and living conditions necessary to provide the reader with a complete understanding of the disaster and its outcome.

The book is geared toward any audience looking not only for a historical perspective of the region but for insight into the people and events that make up Canada's Atlantic coast.



Building Urban Resilience: Principles, Tools and Practice

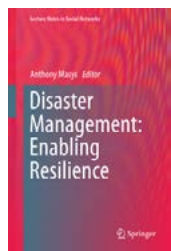
Abhas Kumar Jha, Zuzana Stanton-Geddes and Todd W. Miner, eds. 2013. ISBN (electronic): 978-0-8213-8865-5. 209 p., free download
 The World Bank

By Thomas Haase

Building Urban Resilience is another in a series of reports published by the World Bank that promote resilience as a response to the impacts of urbanization and climate change in East Asia and the Pacific. The contributors argue that recent disaster events have provided insights into how to operationalize the concept of resilience, and equally important, how to incorporate resilience thinking into urban planning and management. The report explores how policy-makers can better use risk information to improve decision-making related to "medium and long-term investments in public infrastructure and urban management."

The report takes readers on a journey from the conceptual foundations of resilience to the practical aspects of resilience development. The opening chapter covers the principles of urban resilience, and examines disaster risk

management, uncertainty and complexity, urban development, and the incorporation of resilience thinking into the project cycle. The second chapter emphasizes a selection of resilience tools: risk assessment, stakeholder participation, data collection and analysis, and risk financing. The final chapter considers how to incorporate resilience thinking into urban investment projects. Three critical urban systems are examined: water and sanitation, energy and communication, and transportation. The appendices include a limited collection of disaster definitions and classifications, a checklist for the evaluation of at-risk infrastructure, and guidelines for the collection, delivery and storage of spatial data. Policy makers interested in urban resilience would find this report useful.



Disaster Management: Enabling Resilience

Anthony J. Masys (ed.), 2015
 ISBN 978-3-319-08819-8
 338 p., \$145,75 (hardcover)
 Springer

By Jennifer Leyson

In his preface, Anthony J. Masys encourages the adoption of “resilience thinking” as a perspective that promotes looking at disaster management from a systems perspective to develop new ways of dealing with disasters. To this end, he has assembled a collection of articles that provide research on resilience thinking tools and techniques, that are supported by case studies and computational simulation.

The 15 chapters in this volume, each authored separately, are grouped into five parts. Part I defines and locates resilience in what Masys calls “domains” of disaster management—urban, cyber, organizational/social and socio-ecological. Parts II through V address each of these.



Individual chapters are often grounded in a real-world context, making the concepts more accessible for non-specialist readers. For example, one discusses the vulnerabilities of resources that people with disabilities depend on and inadequate approaches to these issues. It will interest community planners and others who serve special-needs populations. The glossary at the end of the book is brief but helpful for those who do not have previously encountered “wicked problems” or “Dragon Kings” in their professional reading.

This book is part of publisher Springer’s series, “Lecture Notes in Social Networks,” edited by Reda Alhajj of University of Calgary, and Uwe Glässer of Simon Fraser University.



Adapting to Climate Change: Lessons from Natural Hazards Planning

Bruce C. Glavovic, Bruce C. and Gavin P. Smith (eds.), 2014
 ISBN 978-94-017-8630-0
 461 p., \$179 (hardcover)
 Springer

By Erin Bergren

This edited volume begins with a thoughtful summary of current literature and thinking on climate adaptation. It focuses on interdisciplinary social sciences and will be a valuable reference for those who feel overwhelmed by this expansive, and continuously expanding, body of literature. The authors make an explicit link between barriers to disaster preparedness and barriers to adaptation, and they suggest that lessons from the disaster management community will be useful for those pursuing adaptation options.

The authors also suggest lessons from other countries to disaster planning in the United States, where planners have been slow to integrate learning from international settings. The authors offer a section on climate change adaptation theory, which integrates larger theoretical debates with empirical evidence from South Africa. This is a nice segue into the expansive series of international case studies that follow, many of which would be very useful stand-alone readings for an upper-level undergraduate or graduate syllabus.

The great strength of this book is the way it weaves together knowledge from practitioners and a critical social approach, paying close attention to issues of social vulnerability and resilience, inequalities, and power dynamics within the disaster planning and recovery processes. It is an extremely useful volume for researchers and teachers.

However, for a more general audience it is unwieldy; the timely lessons in this book should be made more palatable for the many non-academics in climate change and disaster-planning communities.



The Great Flood
A film by Bill Morrison
Music by Bill Frisell, 2013
An Icarus film release
80 min. \$24,98 (DVD)

By Elke Weesjes

The Great Flood is a collaboration between filmmaker Bill Morrison and jazz guitarist Bill Frisell and was inspired by the 1927 Mississippi Flood. This disaster was the most destructive river flood in modern American history. The Mississippi's levees broke in 145 places, inundating 27,000 square miles and displacing 500,000 people. Among the displaced were many African-American sharecroppers, who left plantation life permanently and migrated to Northern cities, where they helped develop the sounds of jazz, R&B, and Rock 'n' Roll.

With just occasional fragments of text on the screen, *The Great Flood*, a film without dialogue or narration, conveys the destruction and the aftermath of this disaster. It was created from old newsreels and other footage from film archives, all shot on volatile nitrate stock. Many film fragments used for this documentary are partially deteriorated and pockmarked, adding a visual element of decay to this documentary.

The Great Flood is held together by Frisell's soundtrack steeped in the blues tradition of the region and is organized into mostly successive chapters: "Swollen Tributaries," "Levees," "Evacuation," "Aftermath," and so on. Footage alternates between apocalyptic images of waterlogged towns and people sitting on roofs waiting to be saved, and more lighthearted images such as a man playing an upright piano at an evacuation camp, and displaced people streaming happily out of an urban church after the flood.

Morrison and Frisell have created a unique and mesmerizing documentary that is as much a work of art as it is a valuable historical portrayal.



Megastorm Aftermath
NOVA PBS
Written, Produced and directed by:
Miles O'Brien, 2013
60 min., free.
Available online

By Courtney Richard

Megastorm Aftermath aired in 2013 as an episode on the PBS program NOVA. The episode investigates critical ques-

tions raised in the wake of Superstorm Sandy. It provides expert opinions on whether Sandy was a freak weather event or a glimpse of the superstorms we will experience in the future. The episode also provides examples of extraordinary engineering to address whether we can protect ourselves from the next superstorm by building more resilient infrastructure.

In the episode experts point out that low-lying areas, such as New York City, have more residents than ever. As ocean levels rise due to climate change, these populations are becoming increasingly at risk from storm surges.

Hurricane Sandy was a wakeup call for New York. The flooding of the Consolidated Edison Power Substation, the phone company Verizon, and the city's subway system are examples of the catastrophic damage Sandy unleashed on New York's infrastructure.

The NOVA episode reveals the extent of the damage and then identifies where improvements can be made for long-term resilience. Experts look to the Netherlands, much of which lies below sea level, for original solutions to protect New York's vulnerable harbor. The Netherlands' extensive system of dykes, floodgates and dams work together to protect the country. This innovative network of barriers has the United States looking to the Dutch for inspiration, as they have experienced much success in their rich history of water management.

An important lesson that is highlighted in the documentary is that hard defenses, such as those used by the Dutch, can damage the interconnected ecosystem by drying up marshland that has worked for centuries as natural flood protection. The episode leaves viewers with a solution that blends hard barriers and soft defenses as a means to protect major cities from increasingly powerful storms.

Natural Hazards Library

THE NATURAL HAZARDS LIBRARY is a recognized resource for researchers and practitioners who wish to obtain the most current knowledge available to solve hazards and disaster-related problems. With more than 40,000 holdings, the collection contains a wide spectrum of material print, digital, audio and video—that address the social aspects of disasters. Professional library staff is available to conduct custom searches of the collection, help answer questions, or direct you to the experts who have the answers you need.

For further information about our collection please contact Wanda Headley at Wanda.Headley@colorado.edu.

April 27-28, 2015

Resilience Canada

The Conference Board Canada

Calgary, Canada

Cost and Registration: \$1,555, open until filled

This conference will focus on natural hazards associated with climate change, including flooding, extreme weather, and temperature fluctuation. Topics include adapting after a crisis, contributing to a city's resilience through collaboration, a case study of Calgary's past emergencies, building resilient power supply infrastructure, and federal perspectives on building resilience.

http://www.conferenceboard.ca/conf/15-0098/default.aspx?utm_source=confexternal&utm_medium=email&utm_campaign=PRM9

May 6, 2015

Search and Rescue Conference

Bushfire and Natural Hazards CRC, Australian Institute of Emergency Services, and others

Gold Coast, Australia

Cost and Registration: \$500 before March 30, open until filled

This conference will discuss the challenges of preparing, deploying, and operating search and rescue missions. Topics include maritime search and rescue in the tropical Pacific, night search techniques for missing persons, urban search and rescue dogs, leading multi-agency urban search and rescue, and using remotely piloted aircraft systems for police operations.

<http://sar.anzdm.com.au>

May 10-13, 2015

Public Health and Disasters Conference

The University of Utah

Park City, Utah

Cost and Registration: \$589 before March 31, open until filled

This conference is a part of the Public Health Professional Education series and will focus on emergency public health preparedness. Topics include funding preparedness efforts, preparing for catastrophic events, rapid emergency alert communication, government response to disasters, and working as a first responder.

<https://umarket.utah.edu/um2/publichealth/product.php?product=2&storecookie=1>

May 10-15, 2015

Governor's Hurricane Conference

Governor's Hurricane Conference

Orlando, Florida

Cost and Registration: \$265, open until filled

This year's conference theme is "Rethink Resilience: Connecting Capabilities for Stronger Communities." Topics include maximizing resilience strategies on a budget, developing community action plans, monitoring debris and field operations, using social media in emergency management, practicing effective mass care, planning for public health and health care recovery, and creating a framework for Florida disaster recovery.

<http://flghc.org>

May 11-16, 2015

World Congress on Stress, Coping, and Trauma

International Critical Incident Stress Foundation

Baltimore, Maryland

Cost and Registration: \$720, open until filled

This conference aims to educate professionals on techniques that can be used to better assist individuals and groups facing a crisis. Topics include dealing with line of duty injuries, techniques for delivering bad news, field traumatology, building psychological resilience, disaster preparation for faith based organizations, a law enforcement perspective of the Boston Marathon Bombing, and providing crisis support in the private security sector.

<http://icisf13thworldcongress.org>

May 19-22, 2015

Floodplain Management Association National Conference

Floodplain Management Association

Brisbane, Australia

Cost and Registration: \$1,125 open until filled

This conference will focus on building resilient communities and flood resilient buildings and infrastructure in Australia. Topics include issues in the Brisbane River catchment, Queensland's response and recovery programs, and floodplain risk management.

<http://www.floodplainconference.com/index.php>

May 31 to June 5, 2015

ASFPM Annual Conference

ASFPM

Atlanta, Georgia

Cost and Registration: \$780 before April 16, open until filled

This conference will focus on effective mitigation to reduce human and financial consequences before the next disaster strikes. Topics include understanding local risks, training social media for response and recovery, real time flood forecasting, coastal community resilience, green infrastructure, cost effectiveness of mitigation, levee challenges, and communicating real time and future risk.

<http://asfpmconference.org>

Below are descriptions of some recently awarded contracts and grants related to hazards and disasters. Please see <http://www.nsf.gov/awardsearch/> for more information.

Workshop: Disaster Communication Redesigned

National Science Foundation Grant: 1458029. Principal Investigator: Jeannette Sutton, Co-Principal Investigator: Timothy Sellnow, University of Kentucky Research Foundation. Start Date: 11/15/2014. Award Amount: \$49,974.00.

Understanding the Dynamics of Resilience in a Social-Ecological System

Award Number: 1415130. Principal Investigator: Melissa Eitzel, Co-Principal Investigator, University of California-Santa Cruz. Start Date: 01/01/2015. Award Amount: \$520,412.00.

Capturing Behavioral Response and Perceived Risk to Ebola Using Social Media

National Science Foundation Grant: 1515702. Principal Investigator: Eric Shook, Co-Principal Investigator: Andrew Curtis, Gregory Gibson, Jacqueline Curtis, Christopher Woolverton, Kent State University. Start Date: 01/15/2015. Award Amount: \$41,197.00.

Stokes Drift Fluctuations and Upper Ocean Diffusion

National Science Foundation Grant: 1434864. Principal Investigator: Tim Janssen, NorthWest Research Associates. Start Date: 02/01/2015. Award Amount: \$434,286.00.

An Agent Based Model of Collective Post Disaster Housing Recovery

National Science Foundation Grant: 1454650. Principal Investigator: Ali Nejat, Texas Tech University. Start Date: 02/01/2015. Award Amount: \$500,000.00.

Disaster Recovery and Migration Technologies for Cloud Applications and Data

National Science Foundation Grant: 1456088. Principal Investigator: Navraj Chohan, AppScale Systems, Inc. Start

Date: 02/15/2015. Award Amount: \$750,000.00.

Collaborative Research: Rapid Detection & Systems Modeling for Containment and Casualty Mitigation in Ebola Outbreak

National Science Foundation Grant: 1516207. Principal Investigator: Junhong Chen, University of Wisconsin-Milwaukee. Start Date: 02/15/2015. Award Amount: \$94,573.00.

Fostering Advances in Water Resource Protection and Crisis Communications, Lessons Learned from Recent Disasters

National Science Foundation Grant: 1523448. Principal Investigator: Jennifer Weidhaas, Co-Principal Investigator: William Alexander, West Virginia University Research Corporation. Start Date: 02/01/2015. Award Amount: \$49,948.00.

Performance-based Decision Support System for Resilient and Sustainable Multi-Hazard Building Design

National Science Foundation Grant: 1455466. Principal Investigator: Madeleine Flint, Co-Principal Investigator: Guney Olgun, Jennifer Irish, Jesus de la Garza, Matthew Eatherton, Virginia Polytechnic Institute and State University. Start Date: 02/15/2015. Award Amount: \$1,260,000.00.

Spontaneous Planning, Governance Structure, and a Public Health Emergency: Ebola in Dallas Texas

National Science Foundation Grant: 1522547. Principal Investigator: Abraham Benavides, Co-Principal Investigator: David McEntire, University of North Texas. Start Date: 03/15/2015. Award Amount: \$38,536.00.

Assessing Long-Term Sociocultural Impacts in Disaster Recovery Efforts

National Science Foundation Grant: 1455142. Principal Investigator: Mark Schuller, Northern Illinois University. Start Date: 04/01/2015. Award Amount: \$88,509.00.

The Natural Hazards Observer is back in print!

Many people have asked us for a print copy of the *Observer*. They said that they'd be willing to pay a little for the privilege. For only \$30 a year, you can get a hard copy of the bimonthly *Observer* conveniently delivered by First Mail Class mail.

The *Observer* remains available for free online. You can sign up for paid or free versions at ibs.colorado.edu/hazards/subscribe

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Back issues of the *Observer* are available for \$4.00 each, plus shipping and handling. Orders must be prepaid. Checks should be payable to the University of Colorado. Most major credit cards are also accepted.

Subscribe to the *Observer* and the Natural Hazard Center's electronic newsletter, *DR-Disaster Research News You Can Use*, at:

<http://ibs.colorado.edu/hazards/subscribe>

i-Rec Student Competition

Running parallel to the i-Rec international conference in London, UK, July 6-8, 2015, this competition invites undergraduate and graduate students of architecture and related design fields to submit innovative ideas to reduce disasters and/or improve post-disaster reconstruction strategies. The projects will be exhibited during the conference and a jury of experts will award two prizes (\$1200 and \$800) to the best projects. The competition explores innovative architectural and urban solutions and becomes an ideal academic exercise for exploring various themes such as: stakeholder collaboration and participation; use of local resources and technologies; sustainability in developed and developing countries; resilience and adaptive capacities; slum upgrading and improvements in informal settlements; and low-cost housing solutions.

For more information: http://membresirec.umontreal.ca/student_competition/7th/.

Call for CRHNet Submissions

The Canadian Risk and Hazards Network (CRHNet) publishes a newsletter/journal HazNet twice a year - it is available on-line, free of charge on CRHNet's website <http://www.crhnet.ca>. At the moment, CRHNet is soliciting articles from practitioners, researchers, and students for its April edition which focuses on preparedness as a theme. Its fall issue will focus on a broad theme of community resilience.

If you are interested in submitting a general interest article based on your research or work have had any recent disaster-related experiences, please contact Lilia Yumagulova at lily.yumagulova@gmail.com

Annual Hazards and Disasters Student Paper Competition

Your research paper could net you \$100 and free entry into this summer's Natural Hazards Workshop if chosen as one of the two winners of our annual Hazards and Disasters Student Paper Competition.

Papers may present current research, literature reviews, theoretical arguments, or case studies on social or behavioral aspects of hazards or disasters. The competition is open to graduate or undergraduate students enrolled for at least one term of the 2014-2015 academic year.

Papers must be submitted by April 28, 2015. For more information and application instructions, visit the competition page on the Natural Hazards Center Web site, <http://www.colorado.edu/hazards/awards/paper-competition.html>

Nominations 2015 Mary Fran Myers Award

Nominations are now being accepted for the 2015 Mary Fran Myers Award. The award recognizes disaster professionals who continue Myers' goal of promoting research on gender issues in disasters and emergency management. Individuals and organizations eligible for the award will have added to the body of knowledge on gender and disasters or furthered opportunities for women to succeed in the field. The selection committee is especially interested in nominations from outside the United States. Previously nominated individuals who have not won the Mary Fran Myers Award are still eligible.

The award winner will be invited to participate in the Natural Hazards Workshop in Broomfield, Colorado, on July 19-22 and will be acknowledged in the Workshop program. Workshop fees will be covered. Travel to and accommodations at the Workshop are the winner's responsibility.

To make a nomination, submit the following: Your full name, mailing and e-mail addresses, telephone and fax numbers, and those of the nominee.

The nominee's current resume or curriculum vitae (three-page maximum).

A nomination letter detailing specifically how the nominee's work fits the award criteria described above

An optional one-page letter of support from another person or organization

Nominations should be submitted by April 17 to gdn@gdnonline.com. Questions can be forwarded to Maureen Fordham or Cheney Shreve Liu.

For more information please visit the Natural Hazards Web site, <http://www.colorado.edu/hazards/awards/myers-award.html>

Call for Applications for Editor of *Children, Youth and Environments*

The current editors are soliciting candidates for editor (or co-editors) of the journal *Children, Youth and Environments*. The new editor will assume the position of editor-designate in the summer of 2015 and during the transition will begin working with the current editors Willem van Vliet, Louise Chawla and Fahriye Sancar to become familiar with journal operations and procedures. The editor-designate will assume lead responsibility for the journal beginning in the Spring of 2016, commencing with Volume 26.

The position of editor/co-editor is a volunteer position, with journal funds available to pay for a Managing Editor, copy editor, and other technical assistance. Requirements for editor/co-editor include having a PhD in a field related to children's environments, some editing and publishing experience, and familiarity with the *Children, Youth and Environments* journal. Please, direct questions about this position to Willem van Vliet (email: willem@colorado.edu).

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The success of the Natural Hazards Center relies on the ongoing support and engagement of the entire hazards and disasters community. The Center welcomes and greatly appreciates all financial contributions. There are several ways you can help:

Support Center Operations—Provide support for core Center activities such as the DR e-newsletter, Annual Workshop, library, and the Natural Hazards Observer.

Build the Center Endowment—Leave a charitable legacy for future generations.

Help the Gilbert F. White Endowed Graduate Research Fellowship in Hazards Mitigation—Ensure that mitigation remains a central concern of academic scholarship.

Boost the Mary Fran Myers Scholarship Fund—Enable representatives from all sectors of the hazards community to attend the Center's Annual Workshop.

To find out more about these and other opportunities for giving, visit:

www.colorado.edu/hazards/about/contribute.html

Or call (303) 492-2149 to discuss making a gift.

A U.S.-based organization, the Natural Hazards Center is a nonprofit, tax-exempt corporation under Section 501(c)(3)