



COPING WITH DISASTER

A VITAL REGION AT RISK AND A MOMENT OF OPPORTUNITY

SOCIAL VULNERABILITY AND CLIMATE HAZARDS
IN THE GULF COAST



OXFAM
America

As Louisiana sinks into the ocean—at the rate of 100 square yards every half hour—natural defenses against extreme weather events disappear as well. In the past, people relied on coastal islands and marshlands to absorb energy from ocean storms.

“Before, people could prepare,” says Houma Nation member Patty Whitney of Bayou Interfaith Shared Community Organizing (BISCO). “They knew how to protect themselves from the furor of nature because nature itself provided protection.” (Valerie Downes/Oxfam America)



COPING WITH DISASTER: SOCIAL VULNERABILITY AND CLIMATE HAZARDS IN THE GULF COAST

Over the past several years, Oxfam America has worked to train a bright light on the vulnerability of the geography and the people of the US Southeast.

We have commissioned two reports from the **Hazards and Vulnerability Research Institute (HVRI) at the University of South Carolina**. The first one covers the entire 13-state region, while the second one contains much more detail about Louisiana and Mississippi. This document provides a brief overview of the findings, the concepts, and the methodology.

We hope these materials prove to be useful tools to people in coastal communities, and to decision makers shaping policies in the region.

SOCIAL VULNERABILITY MAPPING ONLINE

The online version of the social vulnerability map of the US Southeast is available at www.oxfamamerica.org/adapt.

The online version of the social vulnerability map of Louisiana and Mississippi is available at www.oxfamamerica.org/svm.

The online applications of the research offer a great wealth of data. The version that covers Louisiana and Mississippi offers a very fine-grained view, down to the census block group level. You can examine the specifics of the four climate hazards, and review data about such factors as income, diversity, home ownership, and much more.

CONTENTS


THE GULF COAST: RICH IN RESOURCES, UNUSUALLY EXPOSED TO RISK	4
GROUNDBREAKING RESEARCH INTO THE “HAZARDS OF PLACE”	5
SOCIAL VULNERABILITY MAP I: THE US SOUTHEAST	6
SOCIAL VULNERABILITY MAP II: LOUISIANA AND MISSISSIPPI	7
DRILLING DOWN TO EXAMINE ONE CITY	8
HOW IS SOCIAL VULNERABILITY DEFINED AND DETERMINED?	9
SOCIAL VULNERABILITY FACTORS	10
MAPPING SOCIAL VULNERABILITY IN LOUISIANA AND MISSISSIPPI	12
HOW ARE THE CLIMATE HAZARDS DEFINED AND DETERMINED?	13
FLOODING, HURRICANE WINDS, SEA-LEVEL RISE, DROUGHT	14
PUTTING IT ALL TOGETHER	
MAPPING SOCIAL VULNERABILITY TO CLIMATE HAZARDS	
LOUISIANA	16
MISSISSIPPI	17
RECENT HISTORY: SHIFTS FROM 2000 TO 2009	18
CONCLUSIONS	19



THE GULF COAST: RICH IN RESOURCES, UNUSUALLY EXPOSED TO RISK

The Gulf Coast is a special region of the US—home to extraordinary people, culture, and history. It is also uniquely exposed to risk from climate hazards, both because of its unusual geography and because of the vulnerability of its people.

Louisiana and Mississippi, in particular, share a geography that leaves them especially exposed to risk from storms and sea-level rise. The Mississippi River winds along the border between the states, and then empties at a coastline that zigs and zags for hundreds of miles among bays and bayous. This fragile and endangered landscape is at elevated risk of the four major climate hazards: flooding, hurricane force winds, sea-level rise, and drought.



At the same time, both states feature some of the most vulnerable populations in the country, with poverty a persistent and deep problem. Mississippi regularly ranks first in poverty in the nation, with Louisiana right behind (at number two or three, depending on the year). Millions of residents in these states endure the difficulties of poverty and social vulnerability that can quickly turn life threatening in the face of a major climate disaster: lack of transportation, mobility problems (from extreme age or special needs), inadequate housing, insufficient insurance, savings, and/or cash on hand. Millions are one big storm away from homelessness, unemployment, hunger, injury, and/or loss of life.

Indeed, the people and the environment of the Gulf Coast have endured a series of terrible blows in recent years. Hurricane Katrina, one of the most deadly and destructive storms ever to hit the US, was followed by Hurricanes Rita, Gustav, Ike, and, most recently, Isaac. These events ended hundreds of lives, destroyed homes and businesses, battered wetlands, and decimated fishing beds and oyster reefs.

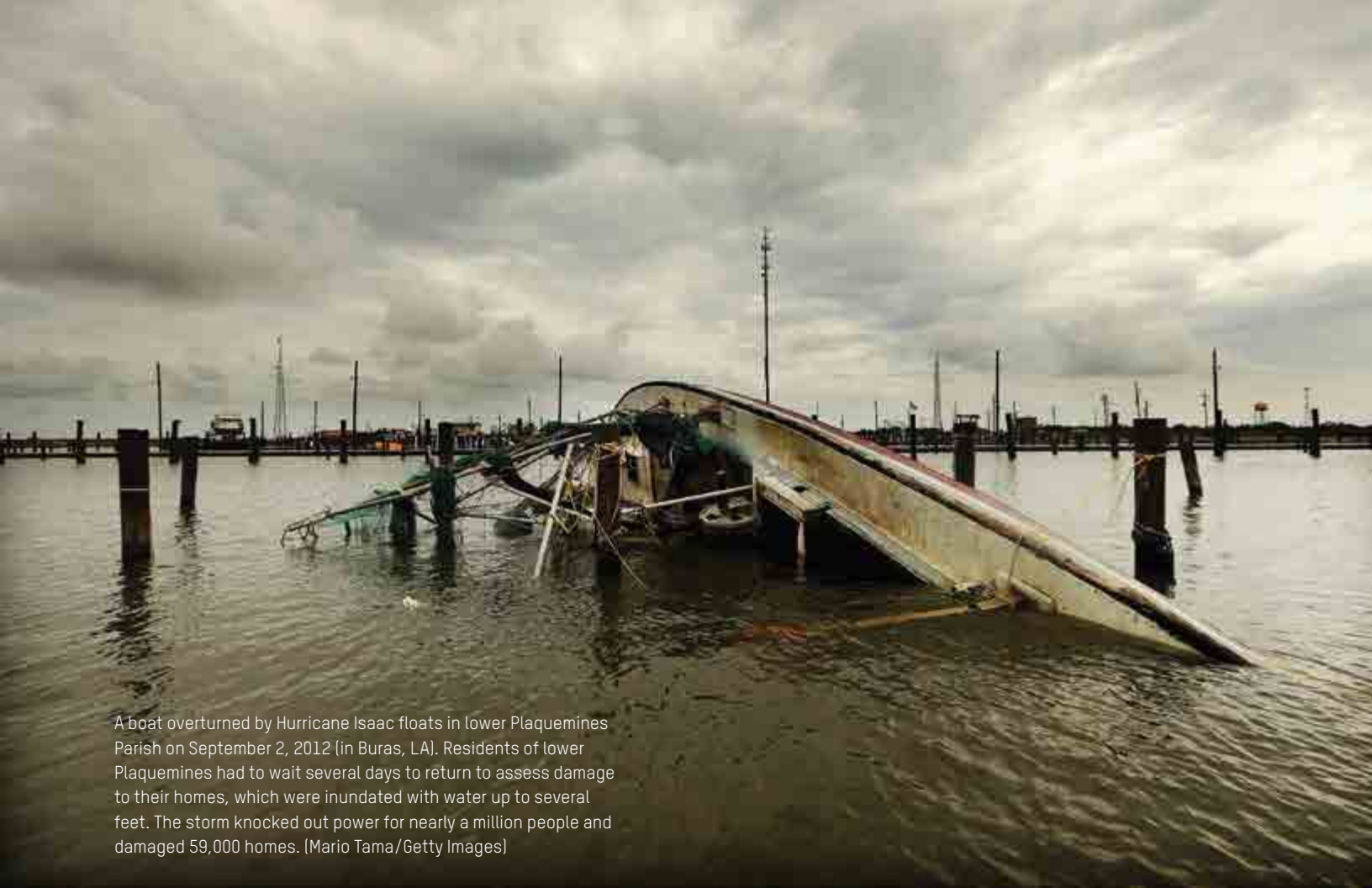
And there appears to be no end in sight to the severity and frequency of these dangers. Changes in the global climate are shifting our lands, waters, and future. As the temperature of the air and ocean rises, climate risks increase: temperature extremes, heat waves, heavy precipitation events, extended periods of dry days, and rising sea level. With increasing frequency, the nation is hit with storms of such intensity that they were once known as “storms of the century.” In late 2012, the country struggled to recover from Hurricane Sandy, which devastated enormous swathes of the eastern US. Again, the most vulnerable suffered the worst effects of the calamity.

The people and the environment of the Gulf Coast matter to the entire country. It’s often said that the Gulf feeds and fuels the nation. Each year, its lands and waters produce 1.3 billion pounds of seafood, provide more than 600,000 jobs in tourism and recreation, produce more than half the nation’s domestic oil and gas, and house 13 of the 20 largest ports in the country.

Although this region has been bruised and battered over the past decade, it now faces an extraordinary opportunity to regain some of its resiliency and to help guard the most vulnerable from harm. After the Deepwater Horizon oil rig explosion released nearly five million barrels of oil into the Gulf in 2010, the RESTORE Act was proposed in Congress. The act, signed into law in July 2012, will send 80 percent of the Clean Water Act fines collected from BP and other responsible parties directly back to the Gulf states to fund environmental and economic restoration. The final amount of the fines will range from \$5 billion to \$21 billion.

Both Louisiana and Mississippi are crafting plans to guide how they make use of their share of the funds to rebuild and restore their environments and economies.

Oxfam America, with deep roots in and long ties to the Gulf Coast, recognizes the fragile and special nature of the place, and has been working for many years to help restore the resiliency of the region, especially in the most vulnerable communities. But we realize that resilience is not just “snapping back” to the status quo. Instead, we believe it’s imperative to take a longer view: to mitigate the impacts of climate hazards, to restore coastal protections, and to strengthen communities.



A boat overturned by Hurricane Isaac floats in lower Plaquemines Parish on September 2, 2012 (in Buras, LA). Residents of lower Plaquemines had to wait several days to return to assess damage to their homes, which were inundated with water up to several feet. The storm knocked out power for nearly a million people and damaged 59,000 homes. (Mario Tama/Getty Images)

GROUNDBREAKING RESEARCH INTO THE “HAZARDS OF PLACE”

Risks and hazards are unevenly distributed across the landscape—and across the population. Some places, such as coastal areas, are naturally more exposed to risk, and feel the effects of climate change more acutely.

As people populate a landscape, they are exposed to risk both by nature of place and by nature of their inherent characteristics. The interaction of natural hazards and how people live on the land produces the “hazards of place.”

Some populations, by virtue of their social and economic characteristics, are compromised in their ability to respond to and recover from extreme weather events. When we consider both the people and the landscape, we refer to “social vulnerability to climate hazards.”

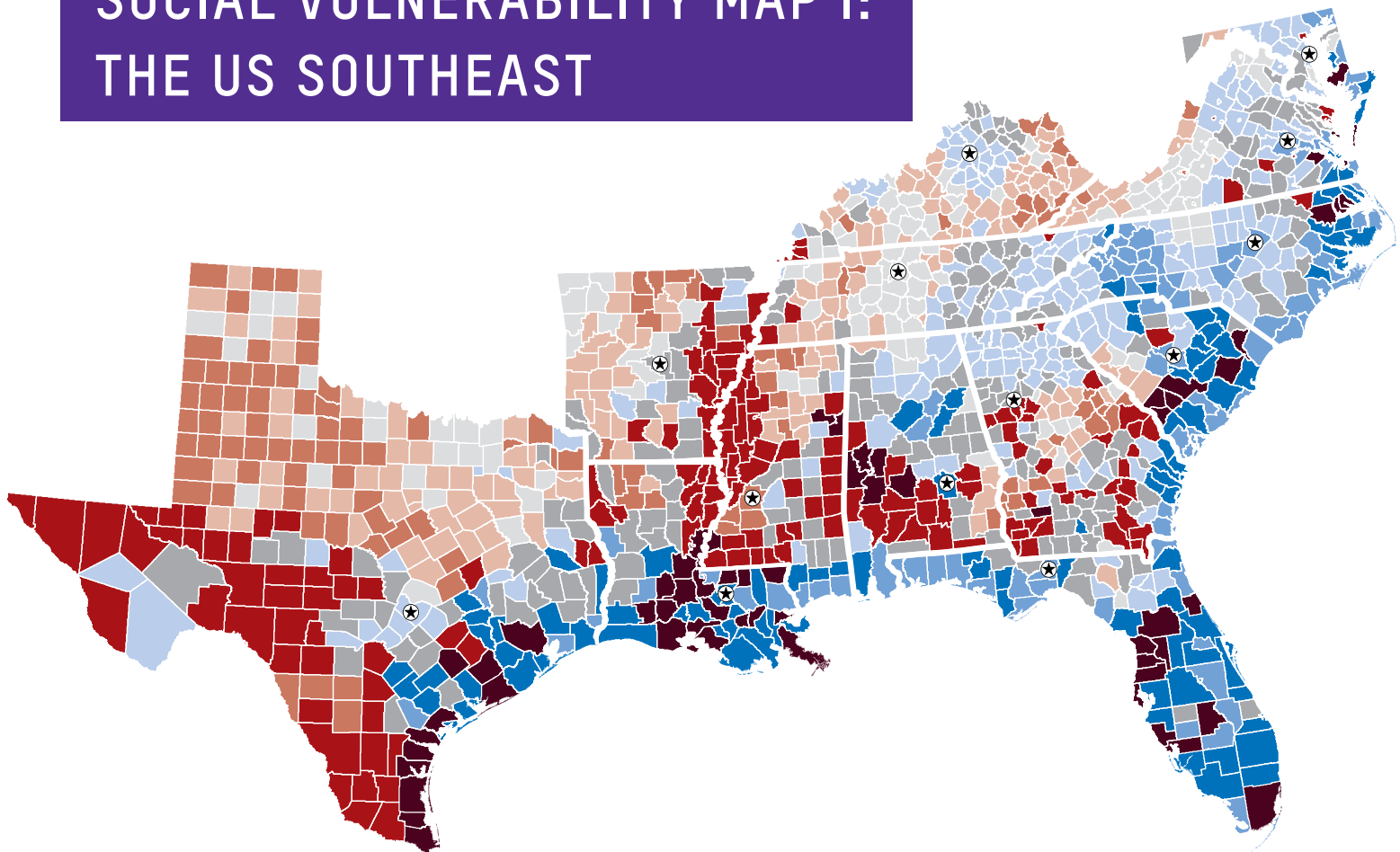
Historically, studies about climate hazards and social vulnerability have been conducted in separate silos. The Social Vulnerability Index (SoVI) is the first study of its kind to examine both the potential impact of natural hazards *and* which populations are most likely to be negatively affected. The application of SoVI to climate change-related hazards was developed by Drs. Susan Cutter and Christopher Emrich of the Hazards and Vulnerability

Research Institute (HVRI) at the University of South Carolina. The SoVI statistically examines the underlying social and demographic characteristics of the population and how they impact certain segments of the population in disabling ways when it comes to climate hazards.

The research takes shape as a series of layered maps that depict social vulnerability and climate hazard risks. The maps assist in identifying hotspots that are at significant risk in the face of four particular climate hazards: flooding, hurricane force winds, sea-level rise, and drought.

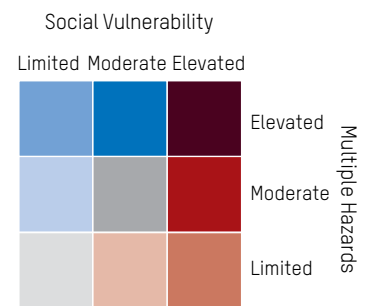
Based on extensive research focused on post-disaster response and recovery that spans nearly half a century, SoVI includes population characteristics known to influence the ability of communities to prepare for, respond to, and recover from disasters. For example, socioeconomic status (wealth or poverty) determines how well people in a community can cope with a disaster: can they drive away, find temporary shelter, locate a back-up generator? The two extremes of age—the very young and the elderly—need special care, and may need help in getting out of harm’s way.

SOCIAL VULNERABILITY MAP I: THE US SOUTHEAST



In 2009, Oxfam America commissioned the Hazards and Vulnerability Research Institute (HVRI) for a report titled *Social Vulnerability Mapping for the Southeast US*. The report focuses on 13 states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

The region is particularly at risk to climate hazards, due to both geography and population. On the one hand, the extensive and complex coastline, especially along the Gulf Coast, leaves it open to flooding, hurricane winds, and sea-level rise. On the other hand, the population has settled in ways that make it particularly vulnerable: high poverty rates, urban and rural extremes, age extremes. Roughly 80 percent of all US counties that experience persistent poverty (defined as a county in which at least 20 percent of the population experiences poverty for three decades or more) lie in this region.



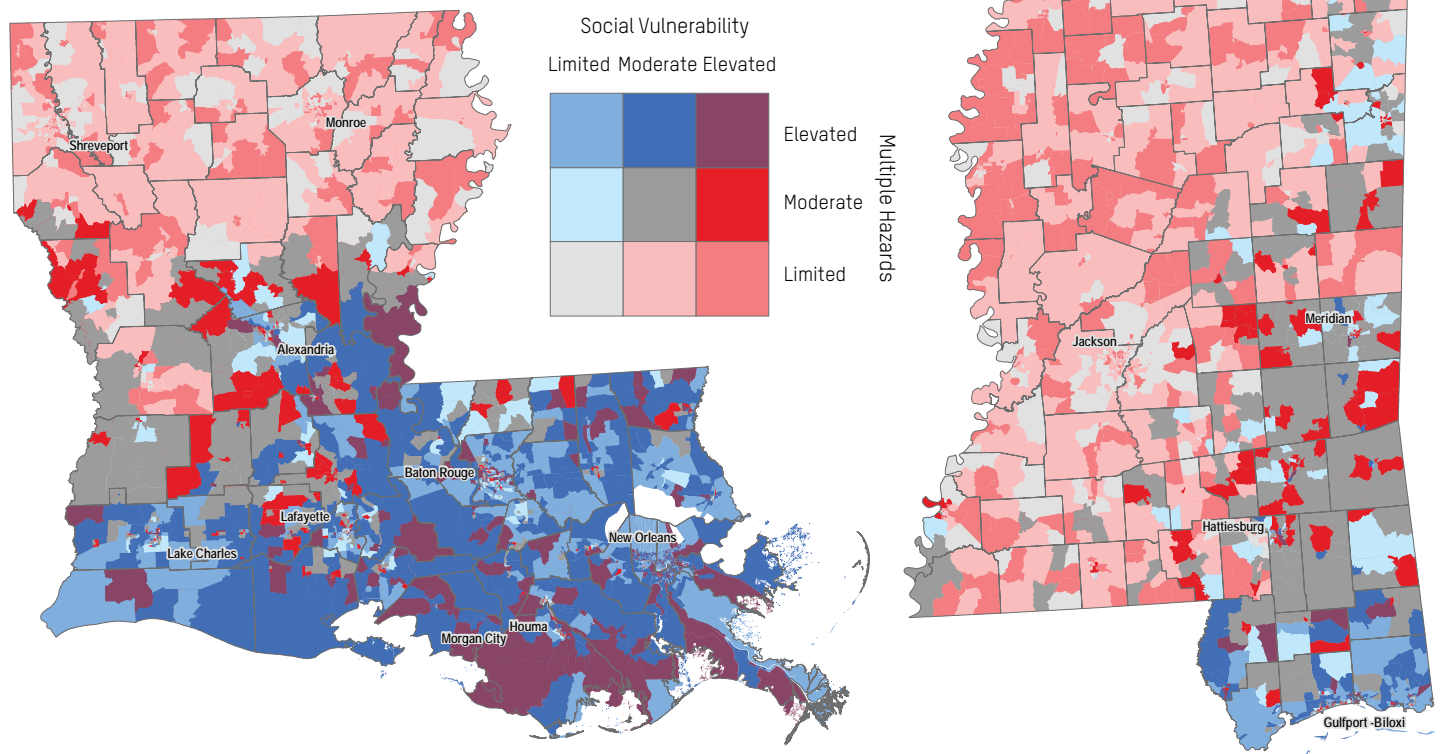
ACCESSING FULL REPORTS FROM THE HAZARDS AND VULNERABILITY RESEARCH INSTITUTE

The two full reports from the HVRI are available by request from Oxfam America, or by download from the online version of the Social Vulnerability Maps.

The full report about the US Southeast is available at www.oxfamamerica.org/adapt.

The full report about Louisiana and Mississippi is available at www.oxfamamerica.org/svm.

SOCIAL VULNERABILITY MAP II: LOUISIANA AND MISSISSIPPI



When *Social Vulnerability Mapping for the Southeast US* was published, community groups and individuals in the Gulf Coast received it enthusiastically—but they wanted more. More detail about their region, more data about their population. The maps were at an elevated view, and missed the subtle distinctions that happen on the ground: the differences between neighborhoods that sit right next to each other.

In response to these requests, Oxfam America commissioned the HVRI in 2011 to produce a second report, *Integrating Social Vulnerability into Climate Change Planning and Preparedness at the Local Level for Mississippi and Louisiana*.

While the first report is based on the 2000 Census and contains county-level data, the second report is based on 2009 Census data, and breaks the data from Louisiana and Mississippi down to smaller census group blocks. As such, it reveals changes in the social vulnerability factors over a period that included extraordinary disasters, including Hurricane Katrina in 2005. Both states continue to suffer extreme levels of poverty, as well as being unusually exposed to climate hazards. The combination results in a population at particular and elevated risk of harm.

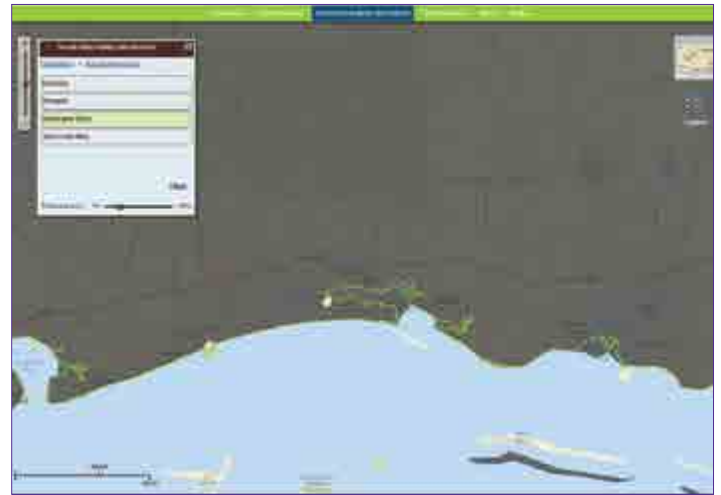
The new version of the map, and the online application, provides an extraordinary wealth and depth of information.

A user can see the big picture of the two states, and can then drill down to a state, a county, a neighborhood, and a census block group. The application enables the user to see not only the risk of exposure to climate hazards, but also the factors that determine the community's ability to cope with these disasters. How many people live in retirement facilities? How many people rent or own cars, or have young children at home?

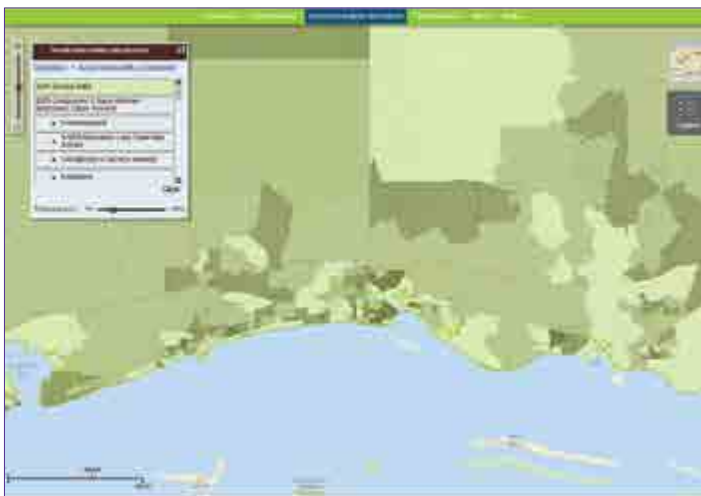
The maps now illustrate the fine-grained differences in communities, especially in cities and along the coastline. And this granularity exposes the ways social vulnerability factors influence how well a community weathers disaster.



RISKS FROM FLOODING



RISKS FROM HURRICANE WINDS



SOCIAL VULNERABILITY LEVELS



SOCIAL VULNERABILITY AND CLIMATE HAZARDS

DRILLING DOWN: SOCIAL VULNERABILITY AND CLIMATE RISKS AROUND BILOXI, MS

Most of the landscape along the coast in Mississippi around Biloxi-Gulfport is exposed to the same level of risk: from flooding, hurricane force winds, sea-level rise, and drought. It is not a large geographic area; however, the neighborhoods along the coastline vary dramatically: from great wealth to deep poverty. These disparities affect these communities' abilities to respond to, cope with, and recover from disasters.

The maps here present the two climate risks of flooding and hurricane winds, then the social vulnerability factors, and then the combination of the climate risks and the

social vulnerability factors. You can see how social vulnerability increases the risk factors of a population, even when they share the same climate risks. (The dark purple areas have elevated risks for both climate hazards and social vulnerability factors.)

When policy makers consider where to invest in restoration projects, especially on the coastline, they would do the most good by taking into account which populations are the most vulnerable to harm. Communities that are strong—wealthy, well-equipped, resilient—do not need the same investments in infrastructure and mitigation efforts.



Family being rescued from Hurricane Isaac's storm surge flooding in August 2012. (Mario Tama/Getty Images)

HOW IS SOCIAL VULNERABILITY DEFINED AND DETERMINED?

The concept of vulnerability, or the potential for harm, provides a means for understanding the interactions between social and ecological systems. It also explains how such interactions give rise to hazards and disasters.

Vulnerability explains the differential impacts of shocks or stressors to natural systems, and the ability of those systems to absorb and withstand impacts. A companion construct, social vulnerability, provides the societal context within which such stressors operate, and highlights the uneven capacity for coping with environmental threats in social systems. Vulnerability is widely used to describe the differential impacts of environmental threats on people and the places where they live and work.

The **Social Vulnerability Index (SoVI)** is a quantitative measure of social vulnerability to environmental hazards. Originally developed in 2003, SoVI provides a comparative metric that facilitates the geographic examination of differences in levels of social vulnerability across states and regions.

Based on extensive research literature focused on post-disaster response and recovery that now spans nearly a half-century, SoVI includes those population characteristics known to influence the ability of social groups and communities to prepare for, respond to, and recover from disasters, especially coastal disasters. The index synthesizes these socioeconomic variables into multiple dimensions, and sums the values to produce the overall score for each spatial unit.

Conceptually, SoVI relates well to indices of social well-being—but in reality it focuses on environmental hazards and the capacity of social groups to cope with the impact of a disaster. SoVI considers how each social characteristic affects the ability to deal with flood, hurricane winds, sea-level rise, and drought.

DEFINING THE SOCIAL VULNERABILITY INDEX: SOCIAL VULNERABILITY FACTORS

- **ECONOMIC STANDING** is the number one factor in determining a community's vulnerability to disaster.

Poor individuals and families often lack the resources to rebound quickly from a disaster, and, therefore, they require more community support. Most poor people are unable to acquire the goods and services necessary to prepare adequately for an impending disaster (e.g., generators and gasoline, canned food, alternative lighting, sufficient medication). They may lack transportation that would enable them to evacuate before a disaster, and they may have difficulty recovering and rebuilding afterwards. They are frequently underinsured, and many lack coverage altogether.

- **AGE EXTREMES** (elderly or young) mean people are less mobile, more dependent on care, and less able to get out of harm's way.

The elderly, whether in group or private homes, face special challenges; they often need medication (which may require refrigeration), assistance in evacuating or with simple survival tasks, food delivery and preparation, and more. They tend to suffer more health-related consequences during a disaster, and they are slower to recover physically from their injuries.

Children provide challenges both to families and to emergency responders. They may need physical items such as diapers and baby formula, as well as support services. Researchers have found that fewer than half of emergency medical programs are adequately prepared to deal with the special needs of children, and children are rarely

incorporated into disaster-scenario exercises. In addition, following a life-changing event, mental and emotional support is essential for children.

- **RURAL AND URBAN COMMUNITIES** each face special challenges when disaster strikes, and these communities have a harder time recovering.

Rural populations are often disadvantaged by poverty, race, age, and gender.

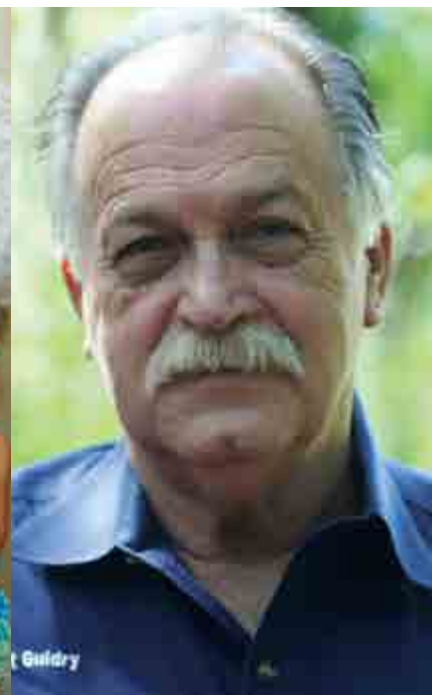
In rural areas, the distances between homes and public buildings may make it harder to evacuate, and more difficult for emergency personnel to reach people left behind.

Densely populated urban communities contain extremes of wealth and poverty, which may mask some social vulnerability factors. Among those often found in cities are immigrants and households headed by women earning low wages.

- **SPECIAL NEEDS POPULATIONS** are less able to cope with physical and social challenges.

Disabled persons, including those with either partial or full physical or cognitive handicaps, may be nonambulatory, less able than others to receive communications or to reciprocate, and may be sight- or hearing-impaired. Those with disabilities are often in the care of someone who is unable without further assistance to manage in a disaster.

While nursing homes and retirement communities may have emergency plans in place, many persons of reduced ability live alone or in high-rises.





Days after Hurricane Isaac pounded the Gulf Coast in August 2012, a family looks out from their porch. (Justin Sullivan/Getty Images)

- **CERTAIN OCCUPATIONS** are associated with social vulnerability. People engaged in low-paying jobs with few or no benefits are likely to find recovery difficult (as will the unemployed).

Those employed in economic sectors that suffer major damage (e.g., the fishing industry impaired by a hurricane) may end up enduring long periods without income.

Furthermore, people who work in service sector jobs, often paid on an hourly basis, will be reluctant (or unable) to evacuate their posts, and will find themselves directly in harm's way.

- **QUALITY OF HOUSING** can determine how well a household is protected from harm. Housing and building types particularly vulnerable to disasters vary from mobile homes in rural tornado-prone environments to substandard or multifamily housing in densely populated urban areas.

Research has found that the most dominant variables in determining vulnerability in housing are mobile homes,

renters (especially in multi-unit buildings), and urban residents in general.

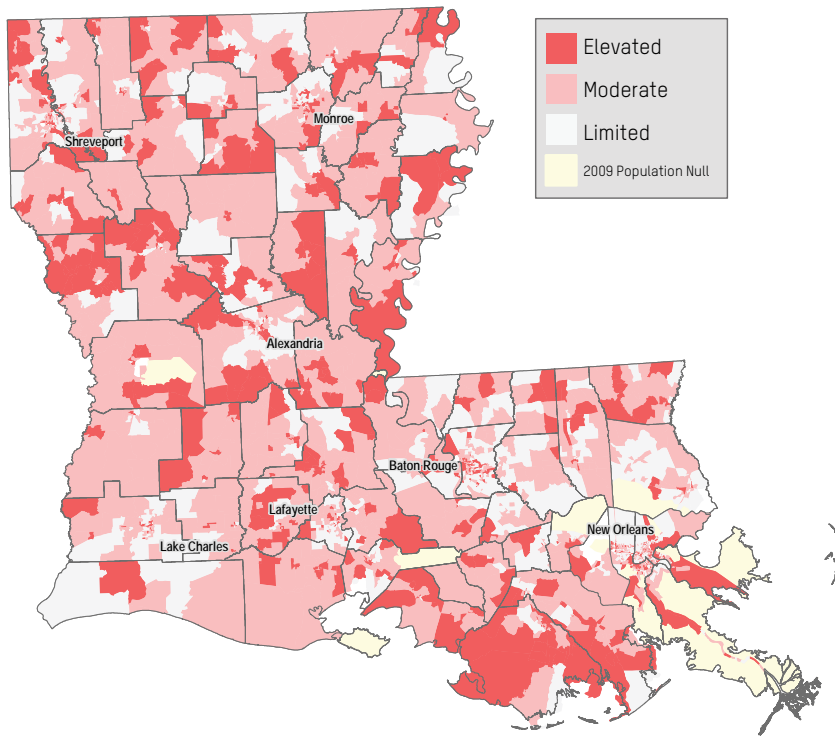
- **RACIAL AND ETHNIC DISPARITIES** can contribute to social vulnerability through lack of access to resources, cultural differences, and the social, economic, and political marginalization that is often associated with racial disparities.

Minority communities are often excluded from disaster planning and preparation functions, with the result that such activities go forward without an understanding of minority culture and life circumstances (e.g., housing, transportation, communication networks).

Relative to other groups, African-Americans are more likely to live in substandard housing or in multi-unit structures.

Communities where English is not the first language may have problems with communication. Members of minority communities are more likely to rely on kin and local social networks (friends and neighbors) for information.

MAPPING SOCIAL VULNERABILITY



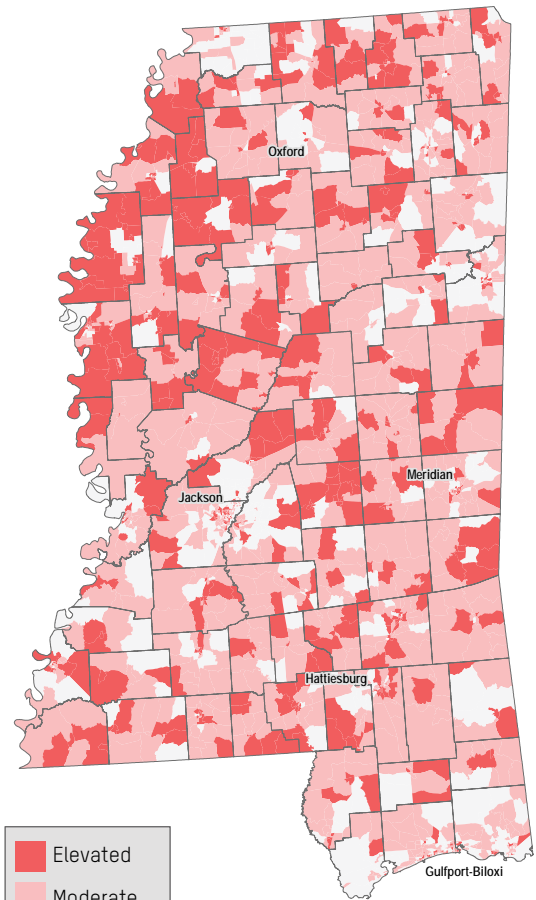
SOCIAL VULNERABILITY IN LOUISIANA

With one of the highest poverty rates in the country, Louisiana is home to an extremely vulnerable population. With the exception of just four parishes, the entire state scores moderate or elevated risk on the Social Vulnerability Index. It has the highest number of areas of any state ranking at the highest levels of vulnerability.

Having endured a difficult history and built a complicated economy, the people of Louisiana share high rankings in the SoVI categories of poverty, minority and ethnic populations, women-led households, older and younger residents, and rural populations.

Two distinct patterns are visible among the most vulnerable populations: urbanized and densely populated areas that contain extremes of wealth (very rich to very poor), and rural areas that contain populations vulnerable because of poverty, race and ethnicity, and gender.

The areas in yellow have such low population density that they register as null in the Census.



SOCIAL VULNERABILITY IN MISSISSIPPI

As the poorest state in the nation, Mississippi has elevated levels of social vulnerability throughout the western part of the state in the traditional Delta region. Driven by the combination of extreme poverty with high SoVI rankings in the categories of race, gender, age, and rural population, these counties contain some of the most socially vulnerable populations in the country.

Mississippi has some of the most vulnerable block groups in the country. Three of these block groups are in Neshoba County and one is in neighboring Newton County. Sharkey County is the most socially vulnerable in the state based on poverty, age (children), race, gender, and rural geography.



Residents look at the remains of their house on the beach in Biloxi, MS shortly after it was destroyed by Hurricane Katrina in 2005. (Robert Sullivan/AFP/Getty Images)

HOW ARE THE CLIMATE HAZARDS DEFINED AND DETERMINED?

The two reports from HVRI cover four climate hazards: flooding, hurricane force winds, sea-level rise, and drought. All four threaten communities in different ways—from catastrophic events that wipe out buildings and infrastructures, to gradual changes in conditions that threaten agriculture, industry, and livelihoods.

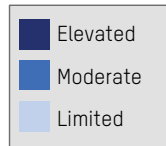
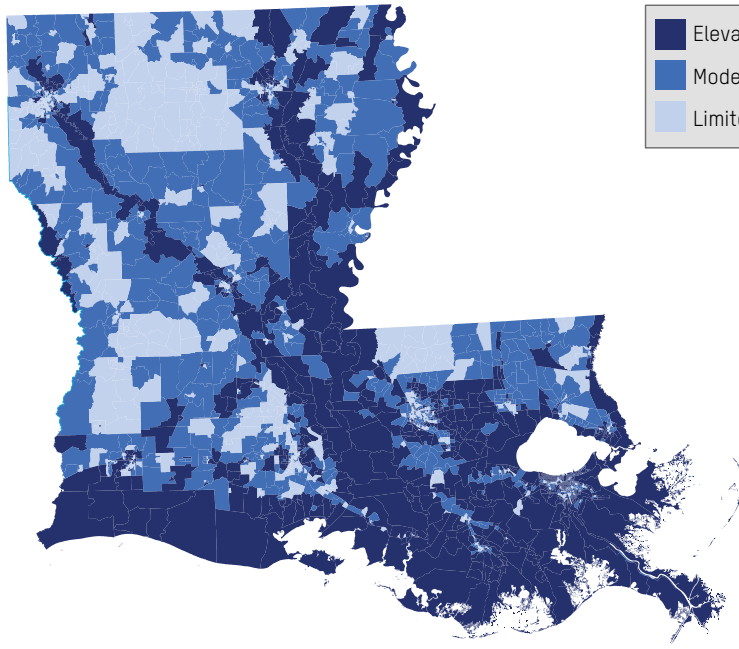
FLOODING. Flood hazard areas were calculated using geospatial data associated with the National Flood Risk Report from the Federal Emergency Management Agency (FEMA 2006). The researchers delineated the extent of each flood zone for each census block group in the US through a spatial intersect process, and then calculated the amount of area in each flood zone in the Special Flood Hazard Area (SFHA). They then calculated the total land area within the SFHA, commonly known as the 100-year flood zone. The flood hazards were mapped using a three-class standard deviation method.

HURRICANE FORCE WINDS. Hurricane winds were determined by first obtaining the storm tracks for all hurricanes from 1978 to 2007 that either made landfall or were located within 100 miles of the US mainland. Because the average diameter of hurricane force winds is 100 miles, researchers defined the hurricane-wind impact areas as 50 miles on either side of the historic hurricane linear track.

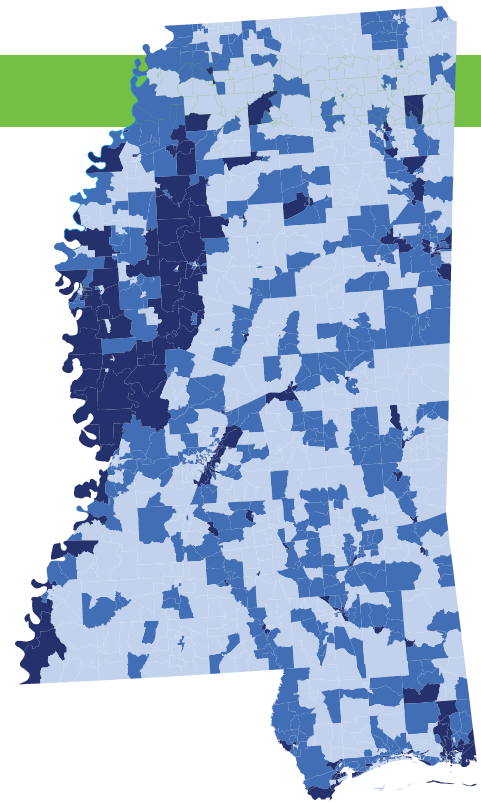
DROUGHT. Drought is a difficult hazard to define and measure because of the diverse geographical and temporal distribution of climates within the US. Broadly speaking, drought is a deficiency of precipitation resulting from unusual weather patterns, or the measure of the degree of dryness from normal precipitation.

SEA-LEVEL RISE. The researchers derived sea-level rise hazard zones from digital elevation model (DEM) data available from the United States Geological Survey (USGS) 1/9 arc second National Elevation Dataset (NED). The estimates divided by the total area within the coastal county (parish) produce the percentage of land in each county (parish) within a likely sea-level rise inundation zone.

FLOODING

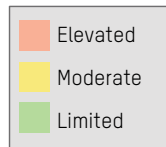
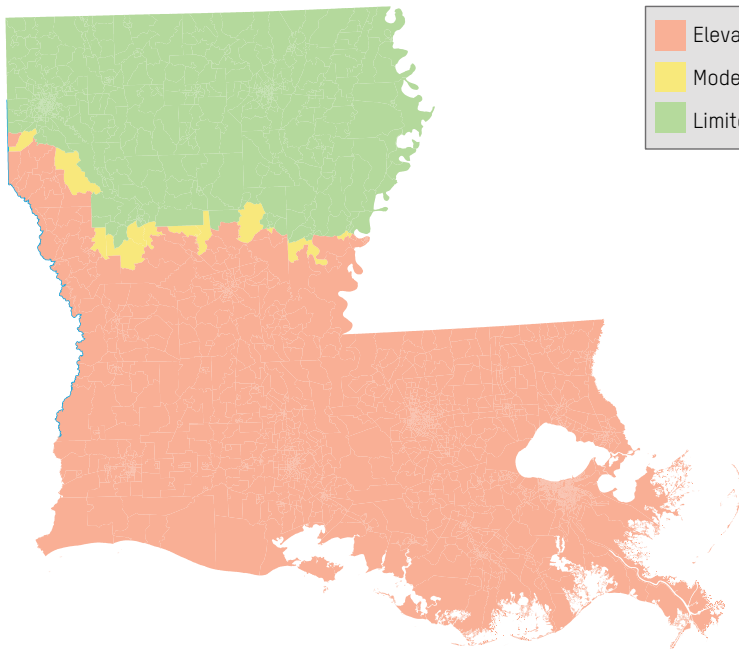


By far the greatest risk in Louisiana is flooding, whether associated with hurricanes or the Mississippi River. Nearly half (48 percent) of the state lies within the FEMA-designated Special Flood Hazard Area. In some parishes, the land within the floodplain tops 90 percent. The deltaic plain of southeastern Louisiana has some of the highest flood hazard risks in the nation.

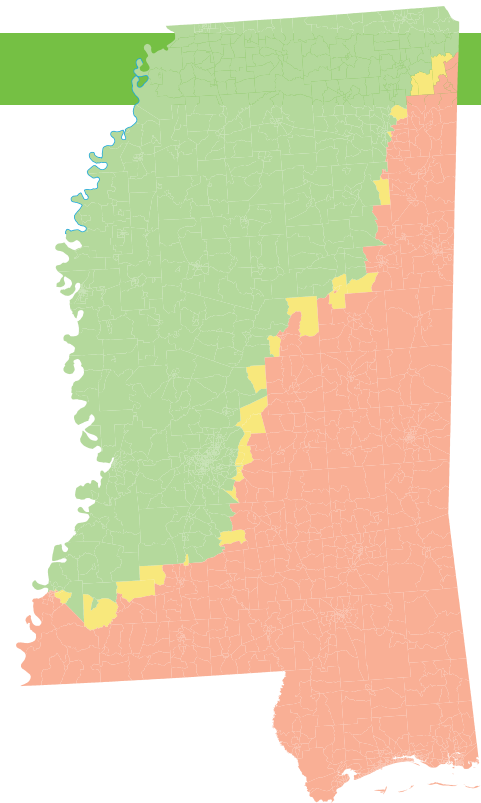


In Mississippi, the Mississippi Valley and the Delta region, as well as floodplain areas associated with the Black River and the Pearl River, have elevated flood hazard risk. Coastal communities face moderate to elevated risk of flooding.

HURRICANE WINDS

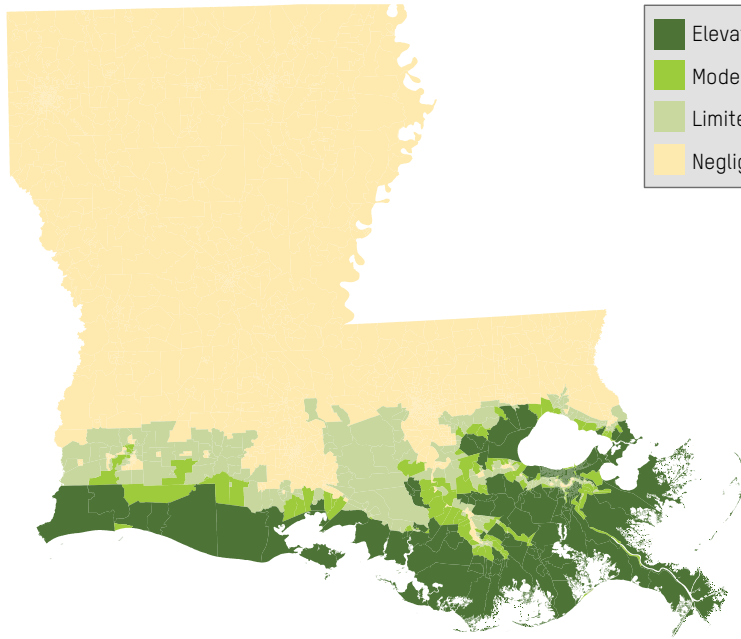


Almost 70 percent of Louisiana lies within the hurricane winds exposure zone. The risk extends well inland and to the north of the Gulf coastline.



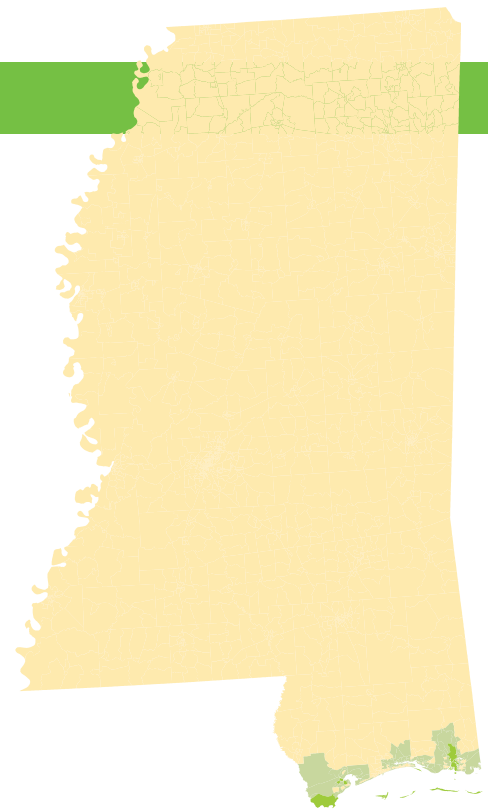
Nearly half of Mississippi's land area falls within the designated hurricane wind hazard zone.

SEA-LEVEL RISE



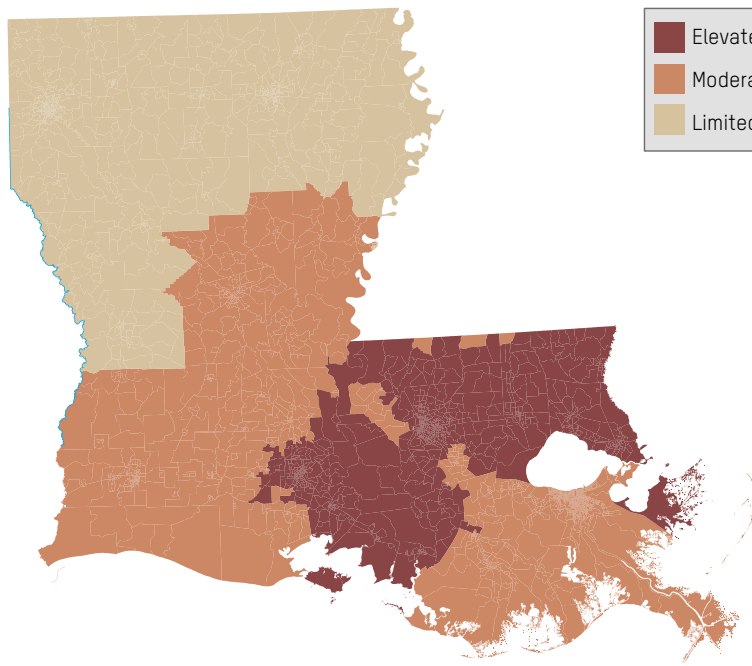
Louisiana has the greatest exposure to sea-level rise hazards in the Southeast, with the potential for up to half of its land area to be inundated by the middle of this century.

Three parishes in particular—St. Bernard, Plaquemines, and Terrebonne—will have as much as 80 percent of their land inundated based on current projections of sea-level rise.

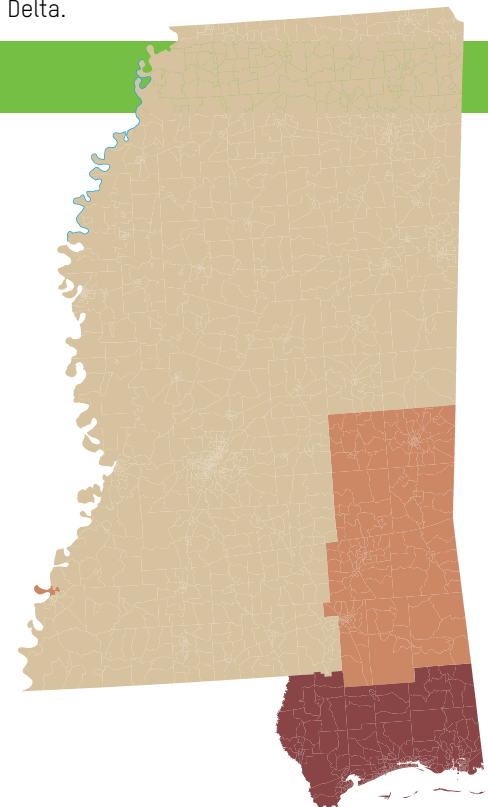


Mississippi has a 360-mile shoreline along the Gulf of Mexico, which is threatened by sea levels expected to rise 15 inches by the year 2100. Hancock County has the largest percentage of land area in the sea-level rise hazard zone (11 percent), followed by Jackson County (8 percent), owing to the Pascagoula Delta.

DROUGHT



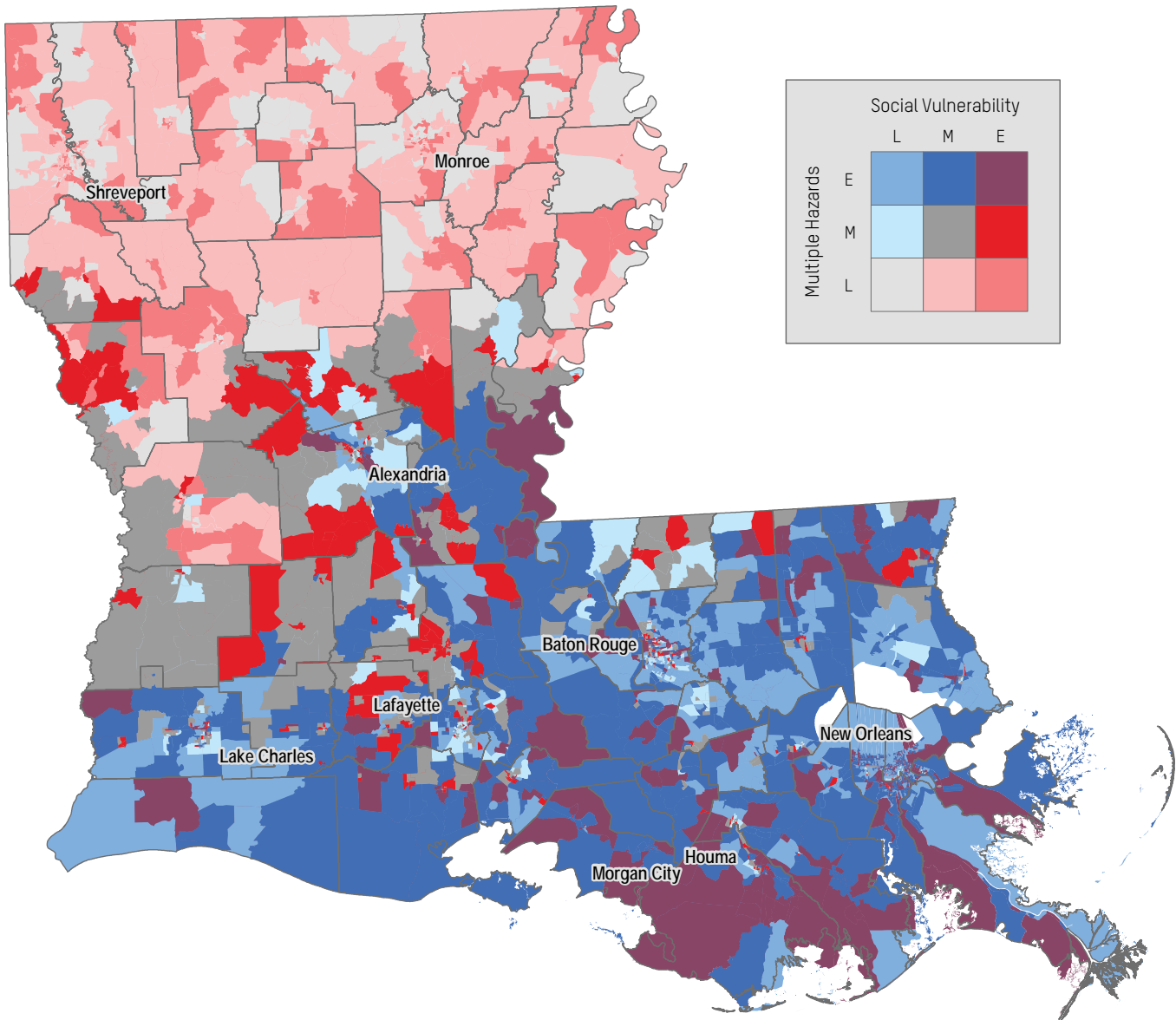
Two trends affect drought conditions: rising temperatures and more extreme and intermittent rainfall events. If drier conditions increase, it's likely that rice production will decrease in the delta region and that grasslands will expand at the expense of forests. Risk of fire will also rise.



Southern Mississippi is at elevated risk for extended drought, which threatens farm-related businesses that rely on adequate water supplies.

PUTTING IT ALL TOGETHER

MAPPING LOUISIANA



Because of its unique geography, Louisiana is susceptible to the four major climate hazards. It features a major waterway in the form of the Mississippi River, and a long and complicated coastline on the Gulf of Mexico. In addition, it lies in the heart of the region most susceptible to hurricanes. When you add in a socially vulnerable population that is distributed between dense urban areas and sparsely populated rural areas, you have a large population at great risk. The recent history of hurricanes has illustrated just how devastating climate disasters can be.

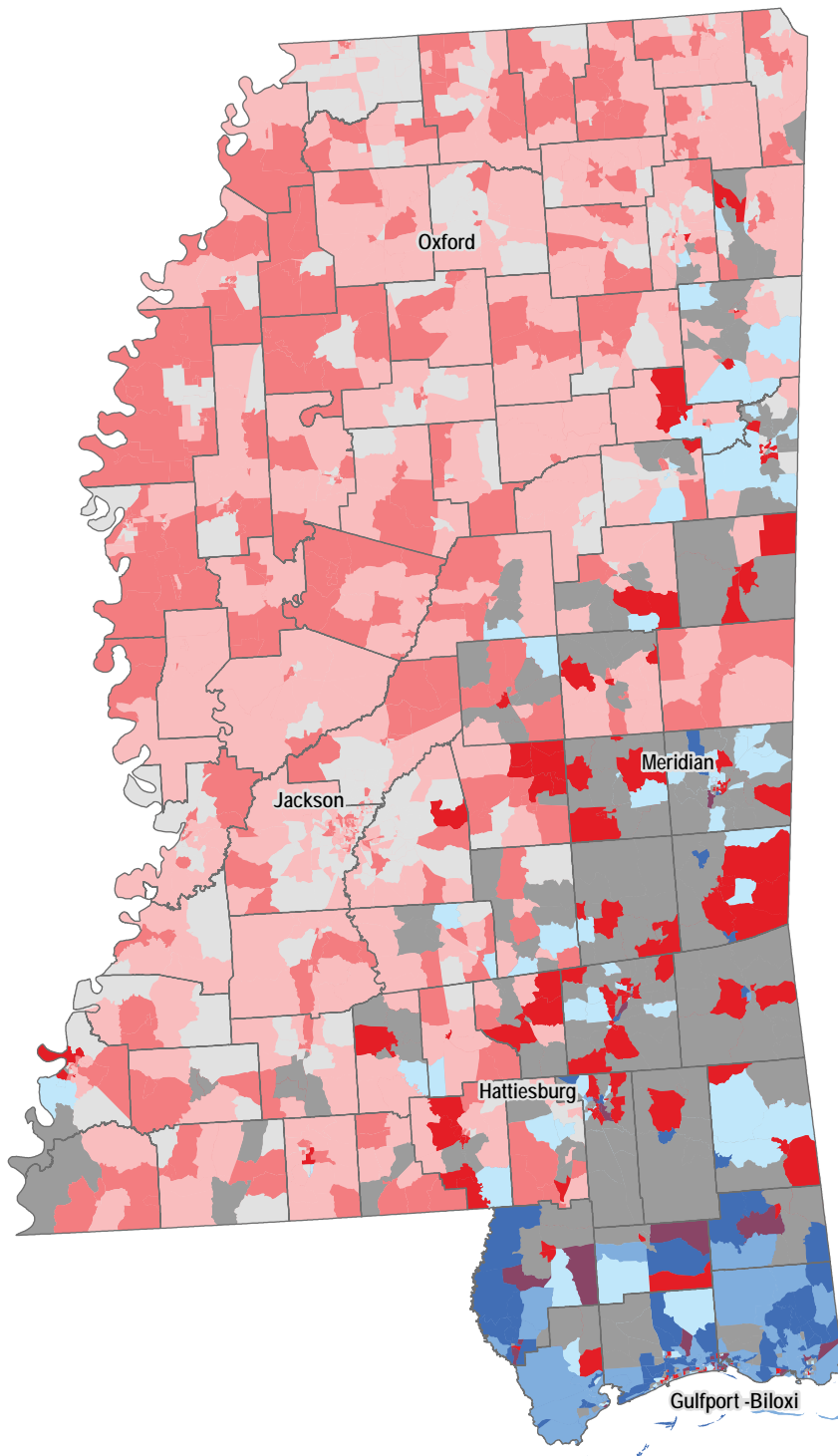
The parishes along the Mississippi River valley have some of the highest social vulnerability to floods in the country. This vulnerability stems from factors such as poverty, race, and special needs.

Almost 70 percent of the state lies within the hurricane winds exposure zone. When social factors are taken into account, the most vulnerable parishes are in the southcentral portion of the state, starting with the coastal parishes bordering Vermillion Bay, Cote Blanche Bay, and Atchafalaya Bay.

Some areas near the bayous along the Gulf coast have experienced a rise in social vulnerability over the past decade or so; given their elevated risk for sea-level rise and flooding, they are among the most vulnerable and exposed populations. Areas around Morgan City, in St. Martin and St. Mary parishes, and Houma, in Terrebonne Parish, are especially affected.

SOCIAL VULNERABILITY AND CLIMATE HAZARD RISKS

MAPPING MISSISSIPPI



Mississippi faces risks from all four climate hazards, and it has some of the highest poverty rates in the country. These two trends combine to expose vulnerable populations to extreme risks. Like Louisiana, Mississippi features both the Mississippi River and a coastline along the Gulf of Mexico, in the heart of the hurricane region.

One unique feature of the Mississippi landscape is that the coastal counties have populations with diverse levels of social vulnerability: rich neighborhoods sit right next to poor neighborhoods along the coastline. This map enables you to see the differences down to the census block group level.

When you explore the online application, you can zoom in to see the fine distinctions.

Some of the coastal areas end up having lower social vulnerability scores than many of the inland rural counties. So although the coastal areas are vulnerable to climate hazards—especially water and wind—their populations are better able to cope with the effects of these disasters.

For example, while the coastal counties have high vulnerability to wind, some of them have moderate social vulnerability—resulting in a lower ranking on the Social Vulnerability Index than some of the inland counties. The counties that have the most social vulnerability to hurricane winds are located inland (Wilkinson and Pike Counties), and along the Alabama border in Lauderdale, Kemper, Noxubee, and Lowndes Counties.

And even as coastal counties face an elevated risk for flooding, if they have moderate social vulnerability, they rank lower on the Social Vulnerability Index than the flood-prone counties along the state's western border. One-third of the land area in Adams, Clay, and Lowndes Counties is in the 100-year floodplain. Social vulnerability scores in these counties are among the highest in the country, leaving them at great risk.



Jesus Diaz looks over the concrete slab that used to be his apartment in Biloxi, MS shortly after Hurricane Katrina struck land. (Barry Williams/Getty Images)

RECENT HISTORY: SHIFTS FROM 2000 TO 2009

Integrating Social Vulnerability into Climate Change Planning and Preparedness at the Local Level for Mississippi and Louisiana offers a new perspective on the landscape and population in Louisiana and Mississippi: it compares data from 2000 and 2009, and provides detail about specific changes across space and over time. In those years, Hurricanes Katrina, Rita, Gustav, and Ike wreaked havoc and changed the landscape in countless ways—swallowing up wetlands, washing away barrier islands, battering ecosystems.

These hurricanes also shifted the population, in ways we have yet to fully understand. Both Louisiana and Mississippi have seen some of the most dramatic shifts in populations resulting from hazard events over the past decade. Hurricane Katrina provided the impetus for mass movements of residents out of southern Louisiana and coastal Mississippi both in the short run and (in many instances) in the long term. These coastal populations have taken up residence in neighboring towns, parishes, and states, and have significantly influenced the underlying ability of some of these places to adequately prepare for and respond to future hazard events.

We do know that populations shift in the wake of climate disasters. When homes and schools and roads are washed away, people may move on as well. Sometimes they return and stay to rebuild; sometimes they move to another area, city, or even state. Sometimes it is the people with the least means who move on, sometimes it is the people with the most; either way, the moves affect the social vulnerability profile of a population.

The landscape changes as well. While the wetlands of Louisiana are steadily disappearing, catastrophic events can wash away vast swathes of land in one blow. Drought conditions can lead to fires, loss of arable land, and erosion. Winds knock down trees, power lines, and buildings.

What we don't know is how much the changes in our global climate are accelerating these shifts in population and landscape; nor do we know exactly what will happen to the most vulnerable who remain the most at risk.



Looking at a levee from a fishing boat in the marina in Plaquemines Parish, LA, just weeks before Hurricane Isaac inundated the low-lying coastal parish. (Mary Babic/Oxfam America)

CONCLUSIONS

Oxfam America commissioned the two social vulnerability reports to shine a light on the particular “hazards of place”—first, of a region, and second, of two very special states. The resulting social vulnerability maps have the potential to be very powerful tools for communities and for policy makers.

Patterns of social vulnerability vary across the landscape, and the likely impact of hazard events is not an exact science. However, creating useful information for emergency management, hazard mitigation, public policy, and community education by mapping known and probable impacts from hazard events and the socioeconomic characteristics of the population is a crucial first step.

The idea of place vulnerability is not a new concept, but these reports provide a powerful frame for how we can deal with disaster events now and in the future. As a nation, we understand that certain kinds of disasters occur in specific geographic areas. We are, however, less aware about the specific spatial impact areas for the major disaster events that unfold year after year—in other words, the geography of hazards. We do know that certain segments of the population are better able to respond to and recover from the impacts of these disaster events than others. What is lacking is the ability to determine how these two processes interact with one another to produce the social vulnerability to hazards, and the ability to present this information in a useful form to decision makers and advocates.

This project demonstrates the ability, in very broad terms, to represent the geographical patterns of hazards associated with climate change and social vulnerability, as the first step toward developing hazard reduction strategies and improving disaster resilience for some of the nation’s most disadvantaged areas.

The moment is now, more than ever. As Hurricanes Isaac and Sandy pounded the eastern US in 2012, they drove home the point that our changing global climate poses extreme and increasing dangers, especially to vulnerable populations along the coast.

And we have a new opportunity in the next several years, as the money from the oil spill fines will enable the Gulf Coast, and the US, to move forward in restoring the resilience and vitality of this fragile and special region of our country.



OXFAM
America

OXFAM AMERICA IN THE GULF COAST

Oxfam America is committed to increasing the resiliency of communities along the Gulf Coast. When a community is truly resilient, it can endure the shocks of a disaster more easily, and it can restore and rebuild—homes, businesses, environmental resources, community buildings, and spirits.

Oxfam's Gulf Coast program combines financial support to key partner organizations with on-the-ground technical support as it focuses on addressing long-standing regional issues, including coastal restoration and economic development based on green jobs.

Oxfam brings a special perspective to many of the efforts to restore the Gulf: we care about the people who live and work on the lands and water, while we appreciate the incredible resources and beauty of the environment.

This document relies on several sources, most notably the two reports from the Hazards and Vulnerability Research Institute at the University of South Carolina. Both reports are available online.

The full report about the US Southeast is available at www.oxfamamerica.org/adapt.

The full report about Louisiana and Mississippi is available at www.oxfamamerica.org/svm.

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Most of the statistics cited and maps appearing in this report are from the first source listed here.

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PHOTOS (NOT OTHERWISE NOTED)

Cover: Two men paddle a boat in flood waters from Hurricane Isaac on August 30, 2012, in Reserve, LA. Hurricane Isaac moved slowly inland, dumping huge amounts of rain and knocking out power to millions. (Chris Graythen/Getty Images)

Page 3: (left to right) Former fishermen now employed as welders in Mississippi. (Mary Babic/Oxfam America)

Family in Louisiana that farms the land behind their house. Grandmother rode the top of the family's house several miles as it floated on flood waters during Hurricane Katrina. (Audra Melton/Oxfam America)

Michael Roberts, fisherman who has endured declines in catches with deterioration of coastline ecosystems. (Mary Babic/Oxfam America)

Vietnamese woman growing food for sale and consumption in her backyard in New Orleans. (Mary Babic/Oxfam America)

Page 10: (left to right) Oysterman who has largely lost his livelihood with decline of oyster catch in Louisiana. (Mary Babic/Oxfam America)

Children of family in Biloxi, MS, whose home was devastated by Hurricane Katrina in 2005. (Liliana Rodriguez/Oxfam America)

Clint Guidry, president of the Louisiana Shrimp Association. (Mary Babic/Oxfam America)

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