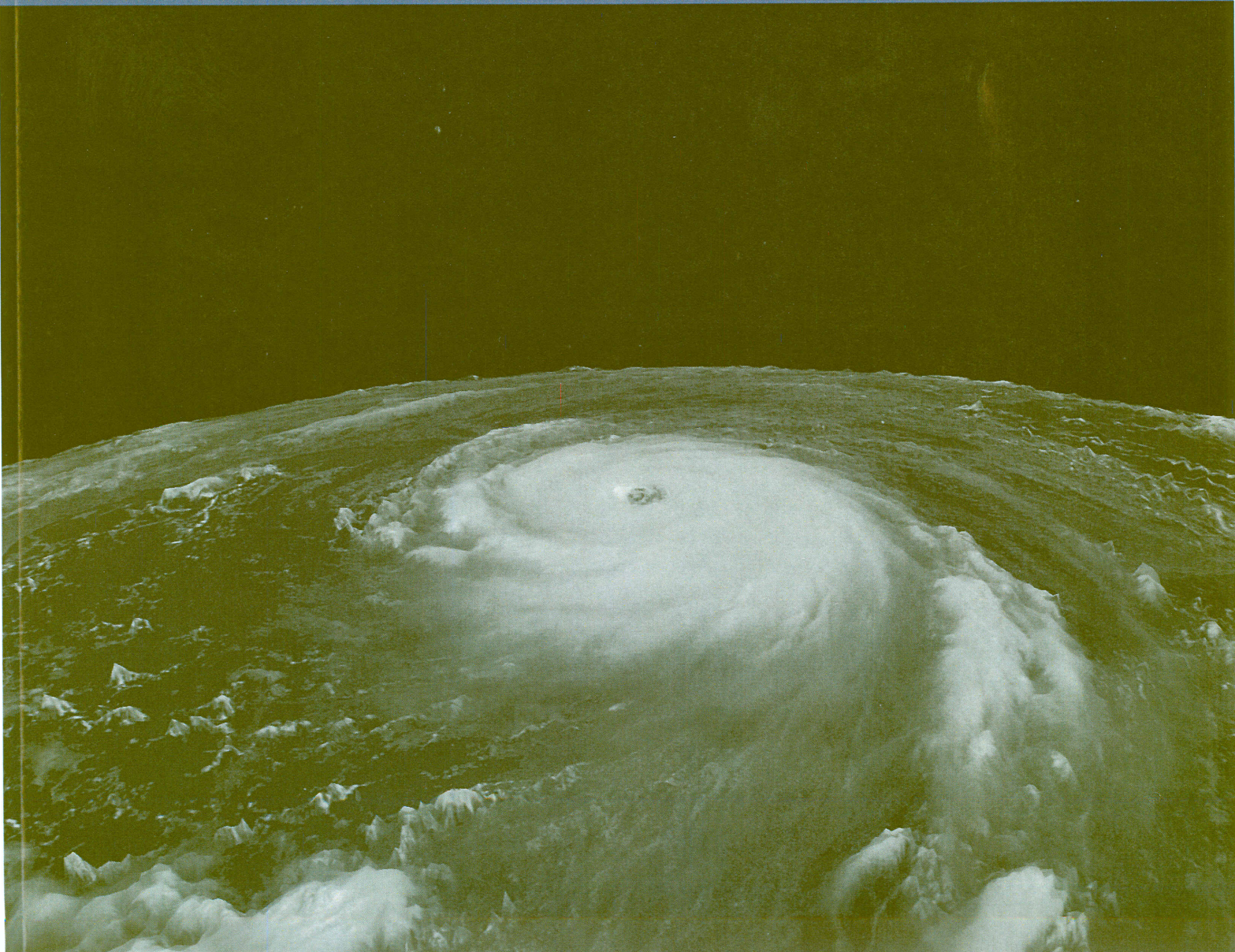


Volume 108
Number 4
December 2006

American Anthropologist

JOURNAL OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION



EDITOR-IN-CHIEF

BENJAMIN BLOUNT
University of Texas at San Antonio

ASSOCIATE EDITORS

John R. Bowen
Washington University

Rosemary Joyce
University of California, Berkeley

SECTION EDITORS

Obituary

Sydel Silverman
The Graduate Center, CUNY

Visual Anthropology

Karl Heider
University of South Carolina

MANAGING EDITOR: Mayumi Shimose

COPY EDITOR: Dac Nelson

EDITORIAL BOARD

Willie Baber	University of Florida
Linda A. Bennett	University of Memphis
Ivan A. Brady	State University of New York, Oswego
Pamela A. Bunte	California State University, Long Beach
Matt Cartmill	Duke University
Eve Danziger	University of Virginia
William W. Dressler	University of Alabama
Carol R. Ember	Human Relations Area Files
Eugenia Georges	Rice University
Jane E. Goodman	Indiana University
James B. Greenberg	University of Arizona
Laura Junker	University of Illinois at Chicago
Conrad P. Kottak	University of Michigan
Kathryn A. Koziatis	Georgia State University
Michael A. Little	State University of New York, Binghamton
Bill M. Maurer	University of California, Irvine
J. Terrence McCabe	University of Colorado
Margaret C. Nelson	Arizona State University
Deborah L. Nichols	Dartmouth College
Michael Paolisso	University of Maryland
J. Anthony Paredes	National Park Service
Devon Pena	University of Washington
Robert W. Preucel	University of Pennsylvania
Annelise Riles	Cornell University
Joel L. Robbins	University of California, San Diego
Marianne Schmink	University of Florida
Ann B. Stahl	State University of New York, Binghamton
Wenda Trevathan	New Mexico State University
Carol V. Ward	University of Missouri
Alisse Waterston	John Jay College of Criminal Justice
Susan C. Weller	University of Texas Medical Branch, Galveston
James M. Wilce	Northern Arizona University
Bruce P. Winterhalder	University of California, Davis

AMERICAN ANTHROPOLOGIST

VOLUME 108

NUMBER 4

DECEMBER 2006



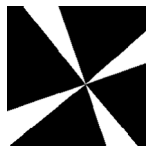
IN FOCUS: THE IMPACT OF THE HURRICANES OF 2005 ON NEW ORLEANS AND THE GULF COAST OF THE UNITED STATES

- 637 Introduction to "The Impact of the Hurricanes of 2005 on New Orleans and the Gulf Coast of the United States"
J. Anthony Paredes, Guest Editor
- 643 A Preliminary Assessment of Social and Economic Impacts Associated with Hurricane Katrina
John S. Petterson, Laura D. Stanley, Edward Glazier, and James Philipp
- 671 Coastal Exploitation, Land Loss, and Hurricanes: A Recipe for Disaster
Diane E. Austin
- 692 Louisiana's Oysters, America's Wetlands, and the Storms of 2005
Tom McGuire
- 706 Finding a Place for the Commonplace: Hurricane Katrina, Communities, and Preservation Law
David W. Morgan, Nancy I. M. Morgan, and Brenda Barrett
- 719 The Taphonomy of Disaster and the (Re)Formation of New Orleans
Shannon Lee Dawdy
- 731 Vulnerability and Place: Flat Land and Uneven Risk in New Orleans
Craig E. Colten
- 735 Why Katrina's Victims Aren't Refugees: Musings on a "Dirty" Word
Adeline Masquelier
- 744 Putting the Ninth Ward on the Map: Race, Place, and Transformation in Desire, New Orleans
Rachel Breunlin and Helen A. Regis
- 765 Declaration of Taking Twice: The Fazendeville Community of the Lower Ninth Ward
Joyce Marie Jackson
- 781 Wade in the Water: Personal Reflections on a Storm, a People, and a National Park
Allison H. Peña
- 799 Bearing Witness: Assumptions, Realities, and the Otherizing of Katrina
Robbie Ethridge



RESEARCH ARTICLES

- 814 Whence Collective Rituals? A Cultural Selection Model of Ritualized Behavior
Pierre Liénard and Pascal Boyer
- 828 The Gilded Age and Working-Class Industrial Communities
Paul A. Shackel and Matthew M. Palus
- 842 Re/Making La Negrita: Culture as an Aesthetic System in Costa Rica
Russell Leigh Sharman



JOHN S. PETTERSON
LAURA D. STANLEY
EDWARD GLAZIER
JAMES PHILIPP

A Preliminary Assessment of Social and Economic Impacts Associated with Hurricane Katrina

ABSTRACT Storm surge and wind associated with Hurricane Katrina caused many deaths and the destruction of property and public infrastructure along the coasts of Louisiana, Mississippi, and Alabama. The devastation was predicted, and absent massive and immediate action, the next major storm will inevitably produce additional disastrous outcomes. Somewhat less predictable are the many social changes associated with the hurricane and public sector response to the event. We characterize some of the more salient human consequences across multiple sectors of the economy—including energy, finance, construction, housing, gaming, and commercial fisheries. We examine how preexisting social trends were amplified, otherwise-latent social and cultural distinctions were exacerbated, and national resources and funds intended for broad-scale “recovery” were converted into instruments of capital formation and further concentration of wealth. We conclude with a discussion exploring public policy and other implications of the disaster in a context of ever-increasing global, environmental, and social challenges. [Keywords: Hurricane Katrina, socioeconomic impacts, Gulf Coast recovery, environmental disaster, evacuation]

THE LANDFALL OF HURRICANE KATRINA in August of 2005 resulted in one of the worst natural disasters in the history of the United States. Observing portions of the damage soon after the passage of the storm, Department of Homeland Security Secretary Michael Chertoff described the situation as an “ultra-catastrophe.” Indeed, the official death toll stands at 1,723 as of August 2006, although nearly 1,000 persons remain missing, whereas others who died in hospitals, clinics, or during evacuation have not been tallied. In the absence of modern communications and travel technology, the death toll of Hurricane Katrina would likely have surpassed the Galveston hurricane of 1900, which led to the deaths of at least 8,000 persons.

Mortality statistics are but one indication of the severity of a natural disaster. In the case of Hurricane Katrina, economic losses have reached the hundreds of billions of dollars.¹ In social terms, individuals and groups have been severely disrupted at all levels of analysis: household, extended family, neighborhood, community, city, state, and national. With more than a million people displaced by the storm, public sector institutions and private sector relief organizations have been challenged beyond capacity. Ethnic tensions have surfaced, net psychological effects are

beyond measure, and even cultural identity and expression have been threatened, as many people have been separated from their home communities. In fact, the human effects of Hurricane Katrina are so extensive and varied that one is overwhelmed merely at the prospect of categorizing them.

Nevertheless, careful analyses of the event and its implications bear valuable lessons for those seeking to relieve current problems and mitigate similar threats in the future. Indeed, the United Nations now predict that by 2010 as many as 50 million persons will be displaced by environmental disasters and related management policies (see press releases for UN Day for Disaster Reduction). Clearly, the case of Hurricane Katrina presents both a warning and an acute analytic challenge to minimize environmental risk and plan for effective response in advance of such troubling and inevitable scenarios.

What follows is an abbreviated overview of initial social and economic assessment work carried out by Impact Assessment, Inc. (IAI) in areas of Louisiana, Mississippi, and Alabama affected by Hurricane Katrina (see 1990a, 1990b, 1990c, 1990d, 1991, 1992, 2001, 2006a, 2006b). The work derives from a wide range of field and archival

research methods implemented in the affected region prior to and following the hurricane's passage (U.S. Government 1994), including the recently completed eight-year Minerals Management Service (MMS) state, metropolitan statistical area (MSA), and county- and parish-level profiles carried out for the five states of the Gulf of Mexico, and completion of a three-year coastal community profiling effort for the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS). IAI's post-Katrina efforts were also funded primarily by the NOAA-NMFS, whose early action enabled timely appraisal and ongoing fieldwork in the region (NOAA-NMFS n.d.). NOAA, however, has not reviewed and is not responsible for the contents of this article.

Our emphasis in this report is on the effects of Katrina, the first of two devastating storms to hit the region within a period of three weeks (on August 29 and September 24, 2005). Although we in no way intend to trivialize the destruction and loss incurred from Rita, the second of the two hurricanes, most of the consequences we will be addressing here resulted from the primary storm. Rita served to magnify and aggravate impacts in an already compromised region, in particular the western parts of Louisiana and the northeastern part of Texas.

The physical effects of Hurricane Katrina were in many ways inevitable. For those of keen insight, they were also predictable in detail. For instance, Joel Bourne, a former IAI researcher and now a senior writer at *National Geographic* magazine, described the inevitability of the catastrophe and its likely consequences—nearly two years before the event (see Bourne 2004). In fact, the damages could have been worse had the eye passed a few dozen miles to the west, or if the wind velocity were ten or 20 miles per hour faster. In the absence of immediate and massive engineering remedies, and in light of present reconstruction trends, future outcomes may be even worse than Katrina's. Our analysis is focused on the recognition that hurricane-related disaster has been inevitable in the region and on the fact that improved understanding and preparation are both necessary and possible.

ENVIRONMENTAL VULNERABILITY

To adequately discuss specific aspects of the storm's consequences and to assess prospects for recovery, we must first describe important elements of the historical and geophysical context. We focus especially on the region around and including New Orleans because the underlying problems here typify those of the larger region. The location of New Orleans and the settlement of communities extending out along the levied Mississippi resulted from the convergence of geographic advantage and related historical events. Thus, the structure of disaster relates to the human geography of the region and settlement by the French early in the 18th century.

A settlement around what is now New Orleans was ecologically opportunistic. Small societies of Native American groups found the region attractive for its easy access

to abundant subsistence resources. Spanish explorers later claimed the region, but the French were the first Europeans to truly settle here. This they did along the natural levees and relatively high ground above the meandering river (see Figure 1). Proximity to the terminus of the nation's largest river system and the strategic if tentative potential of a sheltered port were primary attractions. But these benefits were in reality periodic, as the environmental conditions of the area were ever changing. Population growth complicated matters; as commerce and residential areas expanded, the city would eventually grow outward to ever lower ground, and onto a subsiding delta system averaging no more than ten feet above sea level.

In this vulnerable setting, the city and its residents have long been challenged by a continually meandering and flooding river, natural shifting and subsidence of deltaic soils, and storm surges and flooding associated with periodic hurricanes, tropical storms, and other weather systems. Rather than resettle elsewhere to avoid these problems, people have continually attached meaning to life in this unique location and have invested in physical engineering solutions to protect it. These solutions ultimately tend to falter or fail, however, as can be noted in the history of the city and as most recently evinced by the human consequences of Hurricane Katrina.² The compelling questions that now confront public policy makers are straightforward and recurring: (1) Is this area suitable for inhabitation by humans? And (2) should society continually invest in engineering solutions to protect it? The first question has been continually translated as a technical one, resulting in development and ongoing maintenance of engineering solutions. The second is a political one, to date answered in support of those solutions, but with significant costs and implications for future generations of residents.

Today, the U.S. Army Corps of Engineers is responsible for maintaining the largest, most costly, and most complex water management system in the nation (U.S. Government 2006a). The system consists of bridges, levees, drainage systems, and navigational channels, the principal components of which include the following: the Old River Control Structure at Simmesport, the dam above Bayou Lafourche, the Mississippi River-Gulf Outlet navigation channel, the Gulf Intracoastal Waterway, and the oil-field access and support canals. These structures and channels were designed and implemented primarily to enable consistent maritime commerce in and through the region, and to enable the ongoing presence of human populations in an otherwise uninhabitable area.

But such engineering efforts have fundamentally altered the Mississippi delta. In the absence of normal depositional processes, the entire delta area has continued its natural subsidence, sinking four feet since 1950 (Shinkle and Dokka 2004). Withdrawal of ground water for human consumption and constant pumping of water from lands below sea level (as in New Orleans) have further aggravated the subsidence problem. Subsidence, in turn, exposes the delta and coastal habitats to accelerated erosion from both riverine and oceanic sources, in a mutually reinforcing

cycle. Some have suggested that if the river were allowed to naturally replenish the delta, the effects of storm surge would be minimized. But this would require dismantling the many dams, locks, and levees that now alter the natural depositional patterns the Lower Mississippi. Clearly, this is an untenable prospect in that the existing system of navigation enables transportation of goods into and out of the heart of the nation (U.S. Government 2005b).

Efforts to mitigate the effects of storm surge have also been problematic. For instance, levees constructed in the region were designed to withstand and protect against Category 3 hurricanes, which have peak winds of 130 miles per hour and storm surge potential of 12 feet. Unfortunately, there were several fundamental shortcomings in the original design criteria. First, as noted above, the land being protected is sinking, and particularly so in inhabited areas with high rates of groundwater extraction. The levees constructed around New Orleans and throughout the delta are now about three feet lower than when originally constructed, many on clay and sand foundations highly susceptible to erosion or collapse. Second, sea level is rising, with elevated risk throughout the Gulf of Mexico coastline. Given its unique geomorphic attributes, the region surrounding New Orleans is in particular jeopardy (Hammar-Klose and Thieler 2001). Third, global data indicate a long-term increase in the number of intense hurricanes in the world's ocean basins (Webster et al. 2005), and a more recent increase in the Atlantic Basin, with implications for the U.S. Gulf of Mexico coastline. Fourth, the principal source of protection from hurricane storm surge, particularly for New Orleans, came not from the levees themselves, but from the thousands of square miles of low-lying coastal habitat and near-shore barrier islands over which the surge would have to pass before it struck the levees and city. Over the last 50 years, this habitat has been the fastest eroding wetland area in the United States: Over 1,900 square miles of wetlands, most of which directly buffered New Orleans from Gulf of Mexico hurricanes, have been lost since the mid-19th century (with extensive additional losses resulting from Katrina as we will discuss later). Fifth, despite the fact that Hurricane Katrina made landfall as a Category 3 hurricane, storm surge exceeded 30 feet in some areas because of significant local bathymetric and topographic variability. The duration of high water levels was also unanticipated. Many planning assumptions and models were therefore inaccurate, ultimately leading to the failure of the protective levee system and inundation of a metropolitan statistical area of over 1.3 million inhabitants.

As previously noted, Katrina itself resulted in extensive erosion of protective wetlands (U.S. Government 2005b). Figure 2 above depicts the pre- and post-Katrina landforms of the Mississippi Delta. Note the severity of erosion along the boundaries of the Pearl River (the northernmost yellow arrow), inundation of the New Orleans basin (center arrow), and, most importantly, extensive loss of wetlands and barrier islands (southernmost arrow). Given that Katrina dramatically accelerated erosion of protective islands and wetlands along the coastline, traditional concepts about re-

sistance to Category 3 events are now outmoded. It must also be well understood that ongoing subsidence and erosion of the delta increases the susceptibility of the Louisiana coastline and New Orleans to the effects of future hurricanes. At the same time, climatic and oceanographic models accommodating multidecadal change indicate possible entry into a period of increasingly severe hurricanes in the Atlantic Basin (Gray 2005). Any public policy decision must carefully consider these two critical factors and their potential future intersection. Many local and state leaders are sensitive to the threat, and the U.S. Army Corps of Engineers personnel have settled on a plan for restoring the natural functions of the river, rebuilding the protective boundaries of the coast, and constructing levee systems capable of rerouting flow of natural sediments to aid in restoring coastal wetlands—assuming the political will and commitment of sufficient financial resources, as well as the compliance of nature over the next five to ten years of construction (U.S. Government 2006a).

In any case, the loss of this protective coastal habitat will require recalibration of all storm surge and flood models and reconsideration of all engineering and design standards. Meanwhile, it raises the more fundamental question of whether or not it is even possible to protect the city from even a future Category 3 hurricane, much less a Category 4 or 5 hurricane.

We must also pay due attention to the issue of time. A long series of human decisions and social processes put human inhabitants in the path of Hurricane Katrina (U.S. Government 2006b, 2006c, 2006d). Even assuming the commitment of sufficient financial resources to accomplish the task (a largely unfounded assumption), there is little possibility that the communities can or will be reconstructed within the next five years—perhaps not even within the next ten years. It is also difficult to envision a reconstruction scenario that would support the return of the majority of former residents to New Orleans. The same applies to the rebuilding of existing levees to meet reconfigured standards, and much longer planning horizons are required to accomplish the corps's coastal habitat restoration plans. Over this same ten-year reconstruction period, scores of hurricanes will enter the Gulf of Mexico, the Mississippi may flood, and the economic and racial composition of New Orleans will by then reflect the permanent loss of tens of thousands of poor and minority residents.

Contingency planning and real-time emergency response were also problematic in this case, and Hurricane Katrina is likely to be remembered in part for monies not allocated or properly expended, mitigation plans not implemented, and responses that failed to materialize (U.S. Government 2006b, 2006c, 2006d). When the target of “blame” is, or becomes, human error, disasters are perhaps best conceptualized as human-technological problems rather than events of nature. In this case, the problem is one of enormous scope and complexity, with causal roots in both past and present, and in natural processes and human folly.

OVERVIEW

Our analytic approach must therefore begin with an effort to reduce a vastly complex and extensive human problem—involving the motivations and actions of millions of people, thousands of businesses, hundreds of federal, state, parish/county agencies and local communities, and dozens of NGOs—to a set of variables that represent a manageable array of measures of social effects. Our previous impact studies of technological events (e.g., the Chernobyl reactor accident, the Goiânia Cesium 137 accident, high-level nuclear waste repositories, *Exxon Valdez*, and other chemical and oil spills) reveal a persistent pattern: The measurable physical damages serve importantly, if not primarily, as the “trigger” for large-scale administrative reactions that eventually overtake the immediate physical impacts (Pettersen 1988a, 1988b, 1992). Although the complexity and scale of social and economic impacts deriving from Katrina appear insurmountable, we are confident the pattern will hold at many levels of analyses. In fact, federal government actions and initiatives (particularly those of the Federal Emergency Management Agency [FEMA])—in terms of evacuation requirements, destinations, and “temporary” residential patterns—have already played a profound role in shaping the course of social consequences, followed by state-level reactions and responses, and, then, local-level social and political initiatives (U.S. Government 2006b, 2006c, 2006d).

We expect this pattern to continue and, in fact, to intensify. The reason is clear. At the community level, particularly in New Orleans and out along the Mississippi River and delta where entire communities were demolished, there is little that can be done independent of state and federal action. At the county or parish level, independent action is also severely limited because resources are limited or nonexistent, and the future tax base is in serious doubt. Although the State of Louisiana is putting forth the most valiant of fronts, its resources cannot meet the massive requirements of recovery; its tax foundation has been decimated, and without federal assistance there is no doubt Katrina would have forced Louisiana into bankruptcy. Only the federal government is in a position to respond effectively to this event; yet, in reality, its resources are constrained in the context of military activities overseas, foreign trade imbalances, and skyrocketing deficit. It is within this context that decisions will have to be made.

Although federal decisions and initiatives have channeled, mitigated, or magnified the social consequences of the hurricane to date (and, as we argue, will increasingly do so in the future), these decisions are often taken in response to the social and political demands originating from the states and communities. This feedback loop leads to the funding of projects, distribution of benefits, and other federal allocations that address the most pressing social and political demands. But which stakeholders are making those demands, and what ultimate purpose are they intended to serve? It is here, at this interface between the prevailing social and political “trends” and governmental actions,

that certain preexisting trends are amplified and others are diminished. It is also here, on the local and state levels, that decisions are taken and implemented in service of narrow, entrenched, financially motivated, and vested interests, which, if not coordinated to serve some longer-term desired vision or outcome for the region, will simply replicate prior conditions, in many cases further magnifying the vulnerability of communities and human populations.

FRAMEWORK OF ANALYSIS

Although the disaster has its origins in decisions made over the last few centuries, our analysis continually returns to the day before Hurricane Katrina struck the coast of Louisiana. That day, and the prevailing social, political, and economic forces then in place, represents the base conditions against which the effects of the hurricane and its aftermath are to be measured.

At what geographic location or level of analysis are the effects of Hurricane Katrina best observed or understood? One could, of course, choose to examine the personal, psychological, and economic effects for individuals and families in the context of the community. IAI has committed much energy and time to understanding these individual and family-level effects. For example, we interviewed and tracked evacuees from their first week in the Astrodome through their travels to other U.S. cities or to their arrival in remote camps obscured from media scrutiny throughout the South. But documenting effects at this level is problematic. The first problem, of course, is what we are calling the *diaspora effect* and the inherent research difficulties involved in tracking and monitoring a dispersed population in distress.³ The second problem is that the original “communities” no longer physically exist in the way they once did. For many of the original communities, residents have not yet begun to return, and it is uncertain to what extent they will. The third problem is the variation in effects that resulted from differences in the nature of geographic origin of the evacuees (from New Orleans, to Venice, to Biloxi). New Orleans is a large, complex, urban city, Venice a very small fishing community, and Biloxi is a casino-based recreational economy; each requires assessment of unique variables and emphases.

It is also possible to consider differences between the storm’s effects in Alabama, Mississippi, and Louisiana. Coastal Alabama sustained significant losses of homes along the western half of Dauphine Island, and various forms of coastal damage extending up Mobile Bay, along the edge of Mobile itself, and across the bay in communities of Bon Secour and Gulf Shores. Bayou la Batre was essentially inundated, in some areas up to 14 feet deep. Although Alabama did not bear the full brunt of the hurricane or tidal surge, damages were highly significant along most exposed coastal areas. Nevertheless, because coastal development in the western reaches of Alabama is extremely limited, recovery will likely occur more quickly here than elsewhere.

The Mississippi coast absorbed the direct force of the hurricane, associated tornados, and one of the largest

tidal surges on record. Coastal Mississippi communities sustained severe damages, often extending several miles inland. The coastal communities of Waveland, Bay St. Louis, Pass Christian, Gulfport, and Biloxi were dramatically affected, whereas Pascagoula suffered massive impact only to a narrow strip of its coastline. But in terms of social and economic “impacts,” a number of factors will likely mitigate the severity and duration of the social and economic consequences in Mississippi.

First, the damages were limited to the homes, enterprises, and infrastructure directly exposed to the storm surge along the Gulf of Mexico. Thus, although the damage was severe and in some areas nearly complete, that damage extended only a short distance inland. The majority of the state was relatively unaffected in physical terms. Significantly, many of the state’s waterfront towns and cities were well into the process of coastal gentrification. As detailed later in this article, dilapidated dwellings have been replaced in recent years with expensive retirement properties. This has tended to displace the poor and, for the most part, minority populations. Consequently, many of the homes and properties along this coast were owned by a relatively wealthy, or at least financially secure, population—many of whom were adequately insured. Within weeks of the hurricane, discussion within these communities had already turned to the process of rebuilding, and to the purchase of properties of the uninsured or underinsured owners who had lost their homes. This subtle, but pervasive, process resulted as homeowners who were adequately insured were suddenly in a position to expand their interests, to build larger homes, and to improve their long-term financial position in waterfront locations.

Major stakeholders in Biloxi, the largest Mississippi city affected by the storm surge, were also in an ideal economic position after the hurricane. Most of the casinos had previously been required by law to locate their gambling facilities “offshore” (i.e., in the waters of the Gulf or back bay). Almost immediately following the hurricane, however, well-funded gambling interests began a political campaign to remove “offshore” restrictions. Within weeks of the hurricane, the laws were changed, and a massive reconfiguration of the economy and coastal profile was initiated. The casinos are now well on their way to fulfilling a commonly communicated motto: “Biloxi—the Las Vegas of the Gulf.” Land values anywhere near the former gaming district have doubled and redoubled. Revenues from this development and future gaming taxes will, in turn, make a significant contribution to the rebuilding process.

Recovery in Louisiana will be a problem of an entirely different magnitude and duration. It will be a political and economic problem unparalleled in recent U.S. history. By way of example, Hurricane Ivan, which made landfall in Gulf Shores, Alabama, on September 16, 2004, with Category 3 winds, resulted in the loss of over 2,000 rental units and 5,000–6,000 homes. Between September 2004 and September 2005, because of lack of adequate construction capacity, only about 50 percent of these homes were

repaired. At that rate, the reconstruction of over 300,000 homes in New Orleans would require 75 years. The scale of the damages has yet to be fully understood and begs a number of cogent questions: From where will the money come to repair homes in New Orleans and in the small towns along the Mississippi River, as few were adequately insured? If monies are somehow made available from federal sources, how will these be distributed, and can these new homes be protected or insured against potential future hurricanes of even greater severity? From where will the resources be drawn to reconstruct necessary water, sewer, electrical, and other fundamental infrastructure essential to a resident’s decision to rebuild on his parcel? How long might tax liabilities be waived to accommodate the private investment necessary to rebuild? Against what tax base could other community-channeled services be provided? The issues are numerous and highly challenging at best, perhaps insurmountable.

Given the problems of community-level analysis and the overgeneralization required at the state level, our analysis eventually focused on the larger persistent “patterns,” “domains,” or “themes” of social and economic impacts that reappear in virtually every affected area. Almost all prevailing trends or patterns have been altered in some manner as a result of the event. Some of them have been accelerated while others have been disrupted or reversed. But, in either case, there are people and groups that can or will benefit from this event, and those who will lose. This disparity is a prominent source of local, state, and national contention. Many members of Congress, in fact, have already hinted their resistance to funding the recovery effort. Their opposition can only be expected to increase as the disaster fades from popular memory and the demand for war-related expenditures and other national priorities continue to increase.

FRAMEWORK OF DAMAGES

To fully assess the range of social and economic effects resulting from Katrina, it is first useful to assemble and understand the scope of its physical consequences. The storm made landfall on August 29 along the Central Gulf Coast near Buras-Triumph, Louisiana, at 6:10 am CST as a high Category 3 hurricane. It produced a storm surge of 11 feet in New Orleans and as much as 34 feet in Bay St. Louis and Waveland (see Figure 3).

Federal disaster declarations covered 90,000 square miles, including 23 coastal counties and parishes, of four affected states. Breaches in three of the levees surrounding New Orleans resulted in the flooding of 80 percent of the city. The Ninth Ward and adjacent low-income housing areas were the most severely damaged (see Figure 4). Slidell and other nearby communities in St. Tammany Parish, just north of Lake Ponchartrain, were also hit directly and suffered massive wind and flood damage. More than one-third of Cameron Parish was underwater, effectively destroying several towns in the area. Worst hit, however, were the

communities in southeast Louisiana, primarily in Plaquemines Parish and St. Bernard Parish, many of which were destroyed in their entirety.

Katrina led to the deaths of more U.S. citizens than any natural disaster in recent U.S. history. The death toll now stands at 1,723—with 1,577 of these deaths in Louisiana. Most victims were part of the lower middle class. The median household income in neighborhoods where Katrina victims were recovered was about \$27,000 a year, just under the \$29,000 median for the overall area. In the Knight Ridder database of 486 victims, African Americans outnumbered whites 51 percent to 44 percent. In the overall area, however, African Americans outnumbered whites 61 to 36 percent. Another disproportionately affected group was the aged. Persons aged 60 years and older account for only about 15 percent of the population in the New Orleans area, but comprised 74 percent of the total number of persons who died (Simerman et al. 2005).

The Red Cross estimates that Hurricanes Katrina and Rita together destroyed more than 350,000 homes along the U.S. Gulf Coast, and seriously damaged an additional 146,000. Overall, 850,791 housing units were damaged, destroyed, or left inaccessible. Optimistically assuming that ten workers could complete the permitting, plumbing, electrical, framing, and other tasks necessary to construct a house in one month, it might take 50,000 construction workers who were not otherwise already committed about 14 years to reconstruct these homes. Assuming an average construction cost of \$100,000 per home, total costs would exceed \$85 billion. For most displaced residents, however, this analysis is moot. Insurance coverage, where available, is rarely sufficient to fund reconstruction. Further, even in cases where remuneration is sufficient to reconstruct, it is presently unclear how many people will want to rebuild given future environmental threats, amidst surrounding debris and significantly diminished services, and considering that their homes may or may not be insurable in the future.

DIRECT ECONOMIC IMPACTS

Because the region affected by Katrina is the heart of the U.S. national energy supply system, it is enmeshed in many ways into the larger economy; thus, the economic jolts of Katrina were felt throughout the nation. A few examples will have to suffice.

Energy Sector

As the hurricane approached the coast of Louisiana, it plowed through an array of over 2,900 offshore oil platforms, supporting over 9,000 wells, extending 200 miles out into the Outer Continental Shelf (OCS). An estimate 2,100 platforms and over 15,000 miles of seafloor pipeline were directly affected by hurricane-force winds. These offshore wells generate almost 30 percent of total U.S. oil production and over 20 percent of natural gas production. Although federal officials testified before Congress that the platforms were designed to sustain Category 5 winds and waves, and

hence should have had little difficulty surviving Katrina's (and later Rita's) lower Category 4 winds and waves, this was not the case. It was subsequently discovered that most platforms "were designed only to withstand seas typical of a borderline Category 2–3 storm" (Rappleye 2006). Over 115 platforms were entirely lost during the 2005 hurricane season, with another 52 sustaining serious damage. Over 90 percent of total Gulf of Mexico oil production was idled by Hurricane Katrina alone, with Hurricane Rita subsequently idling the remaining ten percent. Over 80 percent of gas-producing wells were also disrupted by Katrina.

The MMS reports that the cumulative shut-in oil production for the period between August 26, 2005, and May 3, 2006, was over 153 million barrels—equivalent to 28 percent of total annual production for the Gulf of Mexico (i.e., 547.5 million barrels). Total shut-in gas production for the same period represents over 20 percent of total annual gas production in the Gulf. To understand the significance of this number, one need only multiply 547 million barrels by the current market price of \$70 per barrel (\$38 billion). This does not, of course, represent the total cumulative loss resulting from increased importation, lost refinery production, and associated revenue streams throughout the distribution system.

As the hurricane approached the shallower coastline waters, it also churned through a web of submerged oil and gas pipelines used to carry product from the platforms to onshore refineries (see Figure 5). The force of the waves and tidal surges from the two hurricanes disrupted a total of 247 subsurface pipelines, resulting in 418 minor pollution incidents on the OCS (MMS 2006).⁴

The hurricane continued over land, spawning thousands of localized but powerful tornados. It followed along the Mississippi river petrochemical corridor and eventually collided with the heart of the Louisiana refining industry in Baton Rouge, Belle Chasse, Garyville, Convent, Norco, Chalmette, and Mereaux. Refineries in Pascagoula, Mississippi, were also affected. These refineries, in combination with those of the Golden Triangle on the Louisiana–Texas border, produce and distribute over half of the U.S. supply of gasoline. The idling of oil platforms, disruption of pipeline systems, and shutdown of refineries resulting from Hurricane Katrina has had a significant and continuing impact on the U.S. and world economy. As indicated in Figure 6, Hurricane Katrina led, or at least contributed, to the largest spike in oil and gas prices since the OPEC oil embargo of 1973—a spike that has yet to abate nearly a year later. The effects of the storm on the world economy, world geopolitical relations, and international energy policy have been profound and warrant careful monitoring.

Ports and Infrastructure

The Port of New Orleans is located in an economically strategic location at the mouth of the most important commercial waterway in the United States. In terms of transported tonnage, it is the fourth largest port in the world.

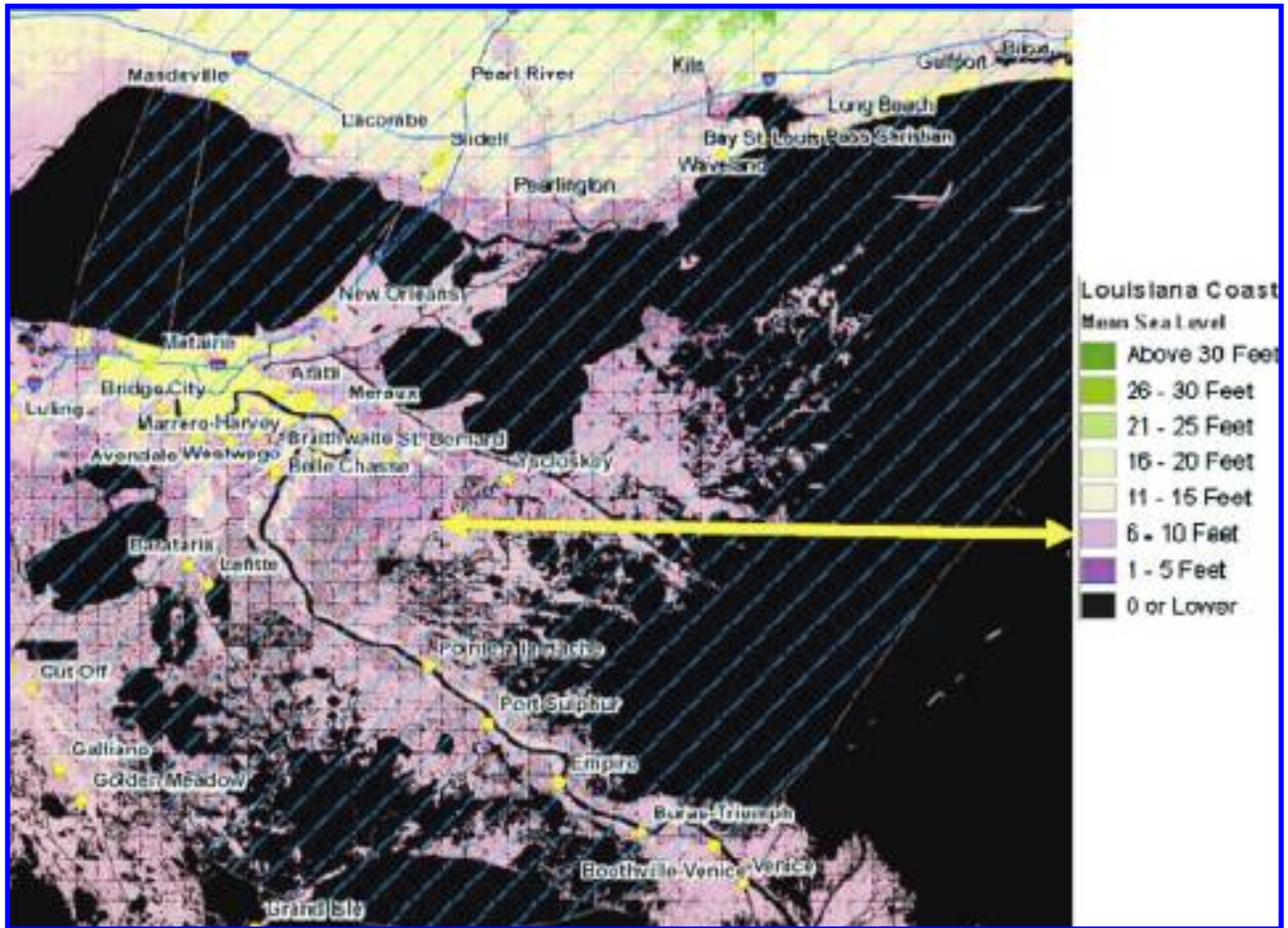


FIGURE 1. Mississippi River Delta Topography.

Over 6,000 seagoing vessels, 31 million tons of cargo—including over 60 percent of the nation's grain exports—pass through its docks on an annual basis. The port recently generated direct and indirect employment for over 100,000 people, over \$2 billion in fees, over \$13 billion in user revenue, and \$231 million in tax revenue. Hurricane Katrina brought this complex to a halt, damaged 12 wharfs, and sank or grounded several hundred transportation barges. Katrina also led to the destruction of the rail and transportation system that is so vital to port operations. Hundreds of miles of rail lines serving New Orleans were ruined. Trains were stopped for almost 400 miles on the CSX Corp's lines and 200 miles on the Norfolk Southern Corporation rails. As a result, farm and industrial goods from the Midwest suffered a temporary loss of access to foreign markets, and the U.S. supply of basic food products and manufactured imports sustained temporary disruptions.

Disrupted operation of this key port has forced a realignment of shipping destinations and functions—a shift that some fear will become permanent. Once accustomed to a new delivery process, shippers will be reluctant to disrupt functioning shipping patterns to return to their

original provider. Houston has been the primary beneficiary of this and similar infrastructure-related economic transitions.

Other Gulf Coast ports were also directly affected. Port infrastructure in Gulfport (see imagery comparison in Figure 5), Ocean Springs, and Plaquemines all sustained massive damage, whereas the ports at Baton Rouge, Port Fourchon, St. Bernard, Mobile, and Pascagoula sustained significant, although less severe, damage. These impacts have contributed to the westward concentration of commercial shipping and fishing support activities and infrastructure.

SOCIAL IMPACTS

National Demographics

An issue of profound importance in this analysis is the plight of the population of persons displaced by the hurricane. Hurricane Katrina displaced an estimated 1.5 million persons (McFadden 2005), who are now dispersed across the United States. The most unequivocal evidence of dispersal patterns are requests for aid. Such applications arrived

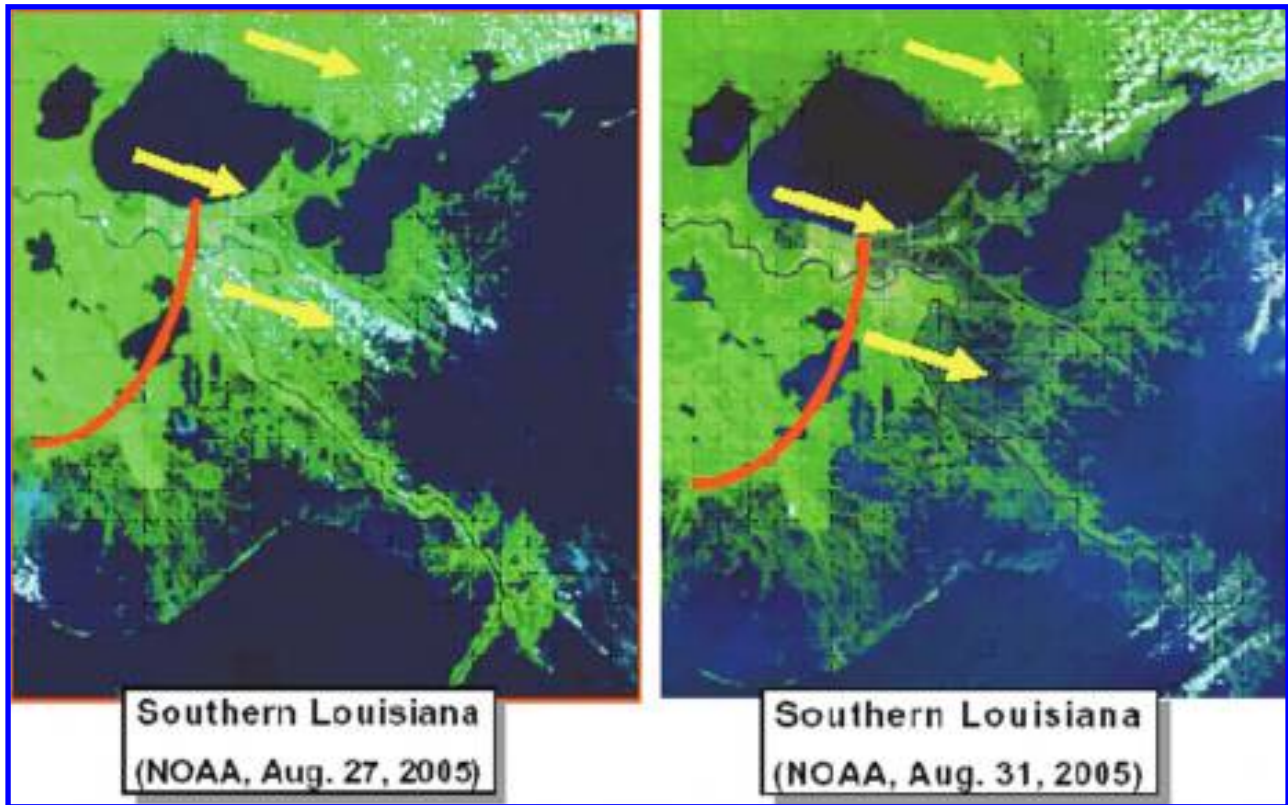


FIGURE 2. Katrina coastal erosion from Hurricane Katrina.

soon after Katrina's landfall. By mid-September, FEMA had received more than 1.3 million requests for aid from households originally located in New Orleans and other parts of Louisiana, Mississippi, and Alabama. Applications were filed from 18,700 zip codes (almost half of the nation's ZIP codes) in all 50 states. According to a *USA Today* analysis of these records, about 975,000 displaced persons went to Baton Rouge and other communities within 250 miles of New Orleans, most preferring to stay in a culturally familiar zone. Roughly 240,000 went to Houston, San Antonio, Dallas, Atlanta, and other cities within about 500 miles of New Orleans. About 26,000 went to cities 750–1,000 miles away, such as Chicago, Baltimore, and Detroit. At least 34,000 went more than 1,000 miles away to cities such as Seattle and Boston. It is important to emphasize, however, that these estimates consider only those persons who registered with FEMA or Red Cross. There is no central registry requirement, and people have continued to relocate in response to their own needs and opportunities.

Postdisaster Return

Research of disaster-related demographic change in the United States indicates that displaced residents typically return home after the event, with limited effects on existing demographic trends. In the case of Katrina evacuees, however, this return migration has been confounded by several factors: the scale of the event, the extent of destruction

and damage, problems associated with reconstruction and financial aid delivery, and the resulting duration of the exodus. Despite the passage of nearly a year since the hurricane, most of these conditions still prevail in the communities directly impacted by Katrina. At what point do the evacuees become permanent residents in their new home communities? Predictably, permanent relocation is most likely for displaced persons with limited savings, insurance monies, and poor credit—the situation of many Katrina evacuees. Furthermore, permanent relocation is more likely when the disaster event leads to loss of suitable job opportunities; when the recipient community offers comparable opportunities, services, or benefits; or when postdisaster gentrification and associated increases in rents and land values actually escalate the cost of returning to one's original neighborhood.

As the days became weeks, and weeks months, it has become increasingly clear that evacuees will not be returning to New Orleans in large numbers. Many, if not most, are in the process of becoming permanent residents of their relocation communities. Again, a potent combination of factors impedes their return. First, there are no homes to return to, and no plans to rebuild New Orleans in a manner that would allow former low-income residents to return. Homeowners were mostly uninsured whereas renters, even if they are patient enough to wait a few years, will not be able to afford expected rent increases. Additionally, transportation and flood control issues weigh against resident return

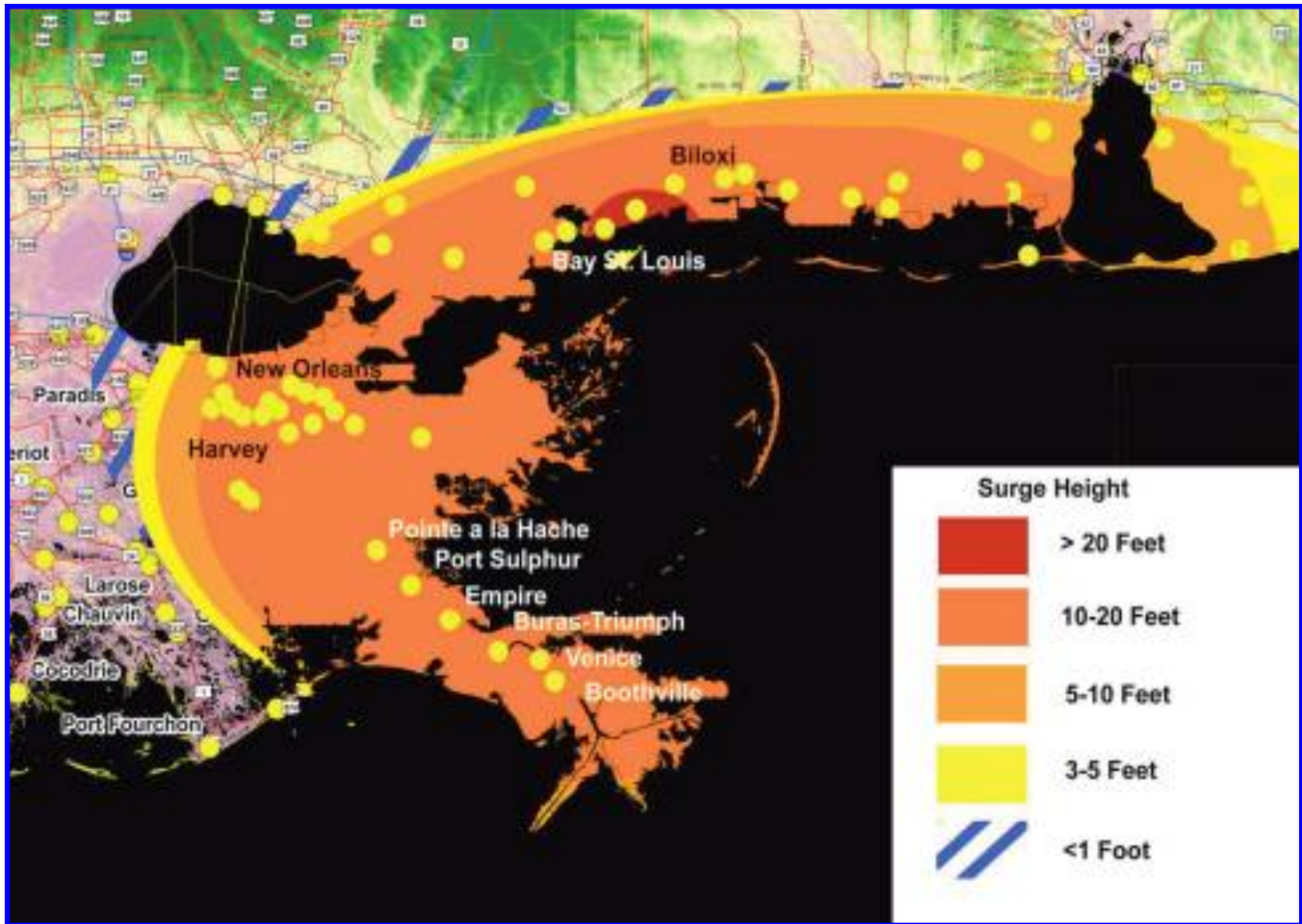


FIGURE 3. Hurricane Katrina tidal surge.

(Stobbe 2006). Second, although the “assigned” community may be Houston, San Diego, or any other city, people adjust to their conditions over time: As jobs are secured, and children are enrolled in school, evacuees eventually will become entrenched in their new lives. Regardless of how the city is rebuilt, many may not be eager to “restart” life in New Orleans.

In trying to discern emergent issues of social import within these fluid relocated populations, our most reliable information comes from Houston. From the start, this city received a large and diverse pool of evacuees. The first group of 25,000 evacuees from Louisiana, primarily those from the Superdome, relocated in Houston’s Reliant Astrodome on September 1. When the Astrodome was declared “full” on September 2nd, the Reliant Center adjacent to the Astrodome opened to 11,000 more evacuees. The following day the George R. Brown (GRB) Center in downtown Houston opened to more displaced persons. In all, approximately 150,000 New Orleans evacuees were relocated to Houston, with some 8,000 still residing in the Reliant and GRB centers as late as September 12th. However, these numbers remained in flux as new evacuees arrived and others departed when they found alternative housing. An accurate count

was further compromised by an almost complete absence of interagency communication and tracking.

Just as significant is the broadening of many of these evacuees’ horizons of geographic possibility. Although many of them had never previously been outside of the New Orleans area, a surprisingly large proportion quickly decided against returning. In early September, only 43 percent of evacuees polled in Houston said they intended to return to New Orleans, whereas 44 percent said they would settle elsewhere (Kaiser Family Foundation [KFF] 2005). A telephone poll taken by *USA Today* in October 2005, with the cooperation of the Red Cross, corroborated these findings, estimating that approximately 50,000 households then in Houston were not planning to return to New Orleans (Page 2005). As of January 2006, only some 25 percent of residents have returned to New Orleans. On the one hand, those who are permanently displaced will have to cope with sometimes dramatic cultural, geographic, and climatic change. On the other hand, those who return may face insurmountable social and economic obstacles.

However, in many destroyed municipalities, the lack of public services additionally is deterring residents from returning. Moreover, without a revenue stream to pay for



FIGURE 4. New Orleans Basin: Post Hurricane Katrina.

public services, there is a limit to what assistance the state can provide, immediately and for years to come. For example, without a sufficient tax base, devastated and depopulated cities and parishes such as New Orleans and St. Bernard Parish in Louisiana and Waveland and Bay St. Louis in Mississippi cannot provide public transportation, public health care, trash service, emergency response services, or education for families who might return. Thus, such areas are “locked in a painful loop”; they cannot entice previous residents to return without services but they are unable to provide services without a tax base (Rivlin 2005a).

Evacuees who cannot afford to rebuild or cannot find affordable housing in their cities of primary residence will settle elsewhere, resulting in the permanent transfer of a large number of poor people from one city to the next. Many of these cities cannot afford to host such a dramatic and immediate population swell. For example, many cities with a large influx of Katrina refugees, such as Houston and Baton Rouge, are describing their social service systems as maximally stressed, even before the evacuees arrived. Houston, for example, saw its population of two million grow by ten percent virtually overnight. Consequently, all of its key city services are strained; schools, hospitals, men-

tal health care services, emergency response services, and law enforcement are particularly overwhelmed. City officials in Houston report that, with the addition of the evacuee population, the post-Katrina ratio of police officers per thousand residents has dropped to 1:9 from 2:3; the national average is 2:8 (Moreno 2006).

Ethnic Shifts

Clearly Katrina has initiated profound ethnic shifts. Before Katrina, Latinos made up roughly three percent of the population of both New Orleans and Louisiana (Campos-Flores 2005; Dyson 2006). Yet efforts to quickly rebuild are likely to alter longstanding ethnic balances with an increase of Latinos and a decrease of African Americans. Labor historians have previously identified a process of ethnic succession across the South, whereby Hispanics are supplanting blacks and low-income whites in many areas of employment (Mohl 2003). Likewise, Latinos are now taking jobs in New Orleans that potentially could have been filled by displaced low-income residents. For example, it is estimated that immigrant (many undocumented) workers are doing in excess of 80 percent of debris removal in hurricane

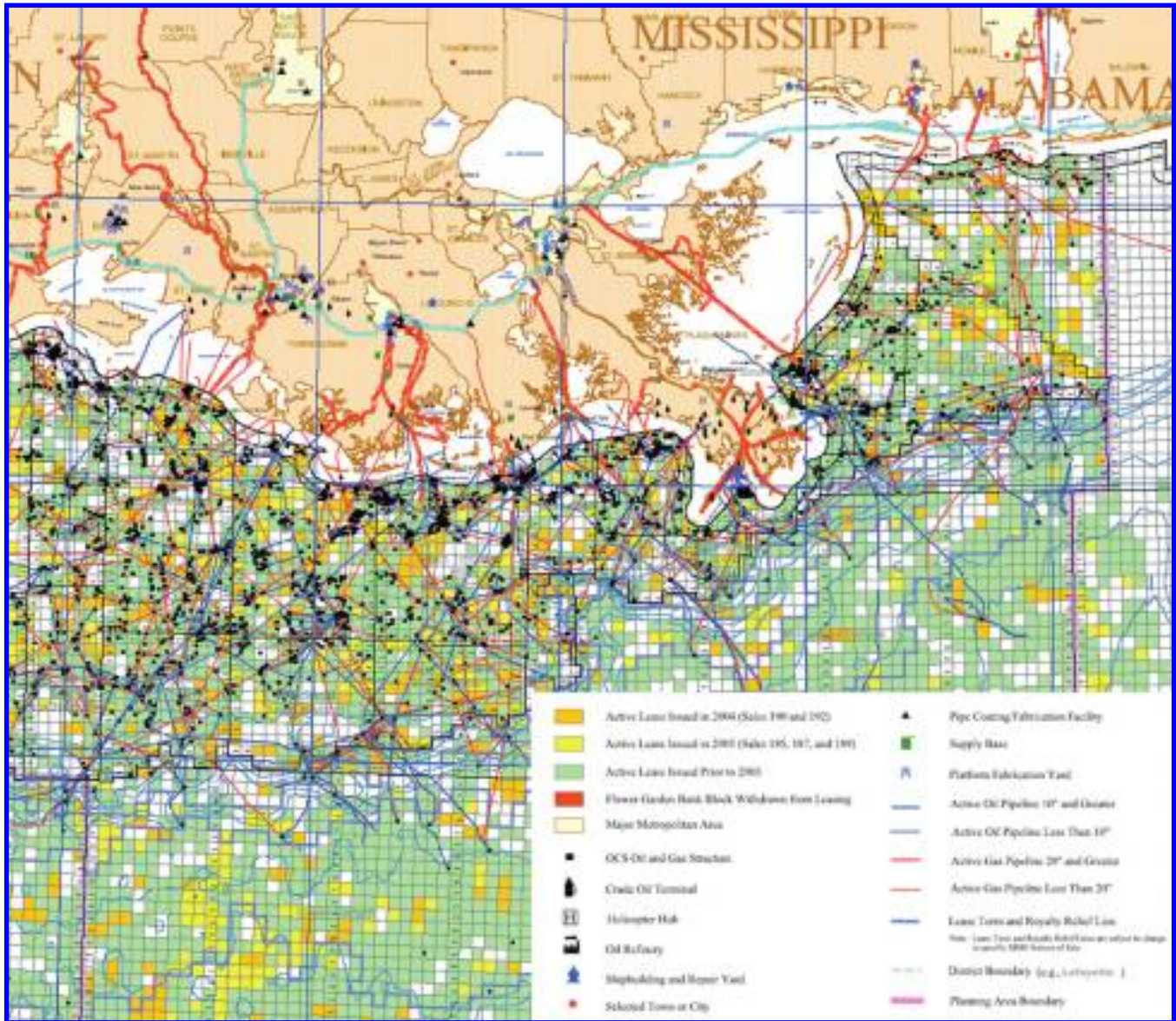


FIGURE 5. Gulf of Mexico offshore oil and gas infrastructure.

ravaged areas (Reyes 2005). However, the seeming preference of some employers for Hispanic workers, who are stereotypically praised as being more compliant and having a strong work ethic, has rankled some black communities across the South (Mohl 2003). The Pew Hispanic Center has found that foreign-born Latinos account for 40 percent of the growth of construction employment and that two-thirds of these immigrants were in the country illegally in the year prior to Katrina's landfall. Workers drawn in for the massive rebuilding effort will then undoubtedly swell the region's relative proportion of Latinos.

Magnifying the Hispanic component of this workforce was a decision by the Department of Homeland Security to not penalize employers who hired illegal workers in the affected areas (Reyes 2005; U.S. Government 2005a). The Davis-Bacon Act, which requires federal contractors to pay

the prevailing local wage, was also waived. These conditions permitted contractors to hire ready labor, but also contributed to exploitation of the primarily Hispanic workers. There are many accounts of immigrant workers who work long hours but often are not paid. Further, these workers sometimes are threatened with deportation when they ask for their pay (Goodman 2005). On the flip side, immigrant workers are increasingly the object of resentment, as local residents perceive them as "taking their jobs" and undercutting the market by working for less than the prevailing wage. Although the Davis-Bacon Act was reinstated on November 8, 2005, immigrant workers are still providing the bulk of labor in this field.

For at least two reasons, this region will also simultaneously lose African Americans. First, this group lived in areas that were disproportionately damaged. A study by



FIGURE 6. Impact of Hurricane Katrina on price of gasoline.

Brown University sociologist John Logan found that the population of the damaged areas was 45.8 percent African American, compared to 26.4 percent of the undamaged areas (Mehren 2006). Once displaced, it is more difficult to return than it is to repair homes that have been continually occupied. Second, individuals in this ethnic group were much more likely to be poor and dependent on institutional evacuations. These efforts settled evacuees farther away than people who depended on their own resources. Thus, poor African Americans who resettled at great distances from their home communities have stronger disincentives to return. Conversely, more than 90 percent of evacuees from the predominately white suburbs relocated within the region (Tizon and Smith 2005). As a result, white suburbanites are more likely to remain engaged in the rebuilding efforts. Given these incentives and disincentives, New Orleans could lose 80 percent of its former African American population; a city that was nearly 70 percent African American before the storm appears likely to become predominantly white (Dao 2006). New Orleans and its suburbs will assume more of the Anglo–Hispanic polarities typically encountered in southwestern cities.

Housing

Damage to the region's housing has been profound. These damages have exacted a massive social cost. As is typical in natural disasters, individuals closest to the edge are in the most danger of falling. For the poor, who are disproportionately renters, the hurricanes were truly catastrophic. As of January 2006, a total 43,284 (24 percent) of 180,155 multifamily housing units (apartments) were categorized as destroyed by Hurricane Katrina in Mississippi, Louisiana, and Alabama, according to the Red Cross. Almost every remaining unit suffered some damage (Foong 2006). Within New Orleans itself, nearly half the population in the damaged areas (45.7 percent) lived in rental housing—compared to 30.9 percent in undamaged areas (Mehren 2006). Competing for the surviving apartments are homeowners whose properties are no longer habitable; those with the means

to do so quickly snapped up available properties and rental apartments. Consequently, demand for housing far exceeds its availability in the areas that experienced the brunt of water and wind damage.

Those without housing and without anywhere else to go were or are now residing in emergency shelters, “tent cities,” trailers, and hotel and motel rooms provided through FEMA, or have camped out in front of their demolished homes while awaiting federal aid and local housing alternatives. As of May 2006, 1.7 million inhabitants displaced from their homes or with damaged structures sought public assistance from FEMA—more than 1.4 million were from Louisiana alone (FEMA 2006; Gunn 2006). Approximately 70,000 evacuees from Louisiana and 105,000 from Mississippi were living in 16,000 and 38,000 FEMA-provided trailers, respectively, as of that same date. Regarding those who had to abandon their homes, the poorest have been reliant on public shelters. Shelter populations peaked at about 273,000 evacuees in the days immediately following the storm, according to FEMA. For individuals with some outside resources or the fortitude to navigate the complexities of the system, these shelters were short-term havens. But for those with few resources—typically the poorest of the poor, who had little experience securing a private apartment and poor credit histories—the shelters assumed many of the characteristics of long-term residences.

As these temporary shelters began closing, however, many of these evacuees took up residence in FEMA-sponsored accommodations (hotels and motels). This hotel population peaked at 85,000 in September of 2005. By February 2006, five months after Hurricane Katrina, FEMA reported fewer than 26,000 hotel rooms remaining occupied across the country (Berger 2006). FEMA provided incentives for these people to find more permanent accommodations, initially establishing October 24th as the date when evacuees needed to vacate the hotels. Yet, in the face of court challenges by advocates of the evacuees, this deadline was extended four times through February 1, 2006, with a two- to four-week extension for those who called to request a “special code.” By January 31, approximately 70 percent of evacuees (i.e., 18,062) still remaining in hotels nationwide had requested FEMA's authorization code entitling them to remain in their hotels through February 13 (*Houston Chronicle* 2006). However, on February 13, the U.S. District Court denied requests that would have forced the federal government to continue paying directly for hotel rooms (Foster 2006a). At the time of this ruling, however, only 12,000 families remained in hotels nationwide. Of this population, about 10,500 (88 percent) continued to receive rent-assistance checks from FEMA. Recipients could use these funds to extend their hotel stays, pay for an apartment, or to repair damages to their homes (Foster 2006a). However, FEMA has made some special allowances on a case-by-case basis, and some 800 families remained in the FEMA-sponsored hotels as of May 3, 2006 (FEMA 2006).

Although the exact dimensions of the need may be contentious, it is clear that demands on both shelter and private housing have affected areas throughout the country. Within the immediate region, long-standing stocks of both rental and owned housing have disappeared. For example, nearly every house on the Baton Rouge market before Katrina has since sold. In a similar fashion, much of the surviving market housing in Biloxi and other areas even more distant from the hurricanes' landfall, such as Houston, has been purchased. As a result, housing costs are rising throughout the region.

FEMA and private charities have responded to these pressures with attempts to build trailer parks and "tent cities." Yet, these efforts have often provoked strong local opposition. Some municipalities are refusing to allow FEMA trailer parks in their region. Concerns about property values are usually cited as the basis for the opposition to these trailers.

One of FEMA's problems is a product of uncertainty regarding the best way to serve these displaced persons. On the one hand, keeping them together facilitates the efficient delivery of services and the formation of a familiar community and social network, but it also may create an entire underclass. On the other hand, although smaller dispersed groups may be better integrated into their host communities, they may then lack access to targeted services. Research on the long-term effects of suddenly moving an entire population comes from disasters in other countries. This body of research indicates that the social routines of the evacuees were totally disrupted, and that five to ten percent of people involved in evacuations never go back (Norris et al. 2004; Sefton 2005); however, the percentage of Katrina evacuees who may never return to their residence could far surpass this "average," exceeding 40 percent (KFF 2005). As a result, FEMA is caught between trying to keep existing communities together so that they may return relatively intact and serving the short-term imperatives of local assimilation.

Evacuee Residency Patterns in Houston

Both approaches are best on view in Houston where large numbers of evacuees have dispersed into apartments and where others remain in cohesive shelter communities. In the first approach, widespread use of vouchers allowed many of the evacuees to find private apartments. The effects of this policy have reverberated throughout the entire Houston housing market. Prior to the evacuees' arrival in Houston, the city's apartment market was struggling with high vacancies; 70,000 were empty before Katrina, amounting to a 14 percent vacancy rate, according to Apartment Data Services. Low interest rates also enticed some apartment dwellers to buy homes, contributing to the overabundance of apartments. Post Katrina, however, the supply and demand continuum has dramatically reversed, with evacuees and corporate housing companies quickly snapping up hundreds of units. Consequently, efforts to disperse evac-

uees in Houston have affected the market within which every Houston renter has to compete.

Yet efforts to keep evacuee communities together have also created problems for Houstonians outside of the housing market. The Department of Housing and Urban Development (HUD) agreed to put evacuees who had been in public housing in New Orleans at the head of a 12,000-person waiting list of Houstonians trying to get into one of the 3,500 public housing units the agency oversees. As a result, evacuees entered many of these buildings "en mass" as cohesive units. Although HUD acknowledges that this decision has caused some resentment among persons who have been on the waiting list for years, housing authorities defend it saying that those on the waiting list at least already have a roof over their heads whereas the evacuees are in crisis (Rodriguez 2005). Still, resentment among long-registered Houstonians is likely to grow over time as the long-term impact of caring for Katrina evacuees sinks in.

At the same time, such cohesiveness makes it easy for evacuees to be portrayed as intransigent opportunists by host communities. The other overarching perception is that those who remain in hotels are taking advantage of the system and bypassing multiple social programs available to the industrious and the patient. "American tolerance" for those victimized by illness or natural disaster is tempered by the cultural ethos that demands one pull oneself up by one's bootstraps and triumph over adversity (Stanley 2002). Persons who remain in shelters or hotels four months after the storms are thus perceived as lazy or "on the dole." Sympathy for these victims wanes accordingly. As one reporter points out, victims of the recent storms have housing options other than living in hotels or mobile homes (Hasten 2006). Ostensibly, evacuees are not taking advantage of these programs because it means moving elsewhere. HUD is offering evacuees free rent for 18 months in 11 states surrounding Louisiana if they agree to pay for utilities. Most of the people who have rejected HUD offers say they want to stay in New Orleans or Baton Rouge where no HUD housing is available (Hasten 2006).

Yet, despite efforts of neighbors to stay together, the physical destruction of housing has wounded smaller traditional communities. Notably, the devastation of property and the coastline that supports communities in Terrebonne and Plaquemines Parishes may accelerate the cultural deterioration of bayou existence. Residents in these parishes, exhausted from coping with the aftermath of hurricanes with virtually no government support, are relocating to other areas (Solet 2005).

SOCIOECONOMIC EFFECTS

Job Loss

The U.S. Labor Department reports that 390,000 people in the Gulf Coast region lost their jobs in the first two months following Hurricanes Katrina and Rita. Louisiana clearly suffered the heaviest blow with some 220,000 lost positions; nearly everyone who lived in New Orleans was unemployed

immediately following the storm. Indeed, state losses may have been even more extensive because Louisiana residents who are now out of state were not counted in these polls. Yet, pain was spread across the Gulf Coast. Over half—200,000—of these jobs were low-wage jobs whose holders least could afford the loss of a paycheck. The economic sectors most affected are manufacturing and construction, which fell by 32,800 jobs between December 2004 and 2005, and services, which lost 163,900 jobs during this same period (Sayre 2006). Even though the number of active unemployment claims in Louisiana had dropped to 126,000 by January 28, 2006, the decline is not entirely because of returning employment. Some claimants lost their benefits after failing to report their weekly job search efforts—a requirement that was initially waived after Katrina but reinstated in late November 2005. Within Louisiana, 20,671 claims were filed from Baton Rouge, 13,046 from New Orleans, and 11,083 from Lafayette (Sayre 2006).

Business Loss

According to the Louisiana Economic Development, 80,000 businesses in southwest Louisiana were affected by the storms. Ninety percent of these were small businesses with 100 employees or less. Approximately 18,000 to 20,000 of these businesses have not reopened as of March 2006. In the New Orleans area, only about 10 percent of its approximately 22,000 prestorm businesses have reopened. In the hardest-hit area of the city, eastern New Orleans, only 108 businesses have reopened (Williams 2006). Still, with competition limited, the businesses that have reopened are booming. To encourage other small businesses to return, the State of Louisiana is offering guaranteed loans of up to \$100,000, interest-free for six months.

Among affected businesses, New Orleans's famous restaurant sector has been notably affected. Before the hurricane, 3,414 restaurants in the metropolitan New Orleans area generated \$2.1 billion in annual sales. These restaurants directly employed some 53,500 workers. As of late January 2006, only 34 percent (1,160) of restaurants had reopened, employing approximately just 15,000 workers, or 28 percent of the previous compliment of employees (Foster 2006b).

Such job cuts are not limited to small employers. In early October, New Orleans Mayor Ray Nagin announced the permanent lay offs of about 50 percent—or nearly 3,000 employees—of the city's "nonessential" workforce because of budgetary constraints. Mayor Nagin explained that this decision would save between \$5 million and \$8 million of the city's monthly payroll of \$20 million. Although firefighters and police were not among those let go, many quit or were fired for abandoning their posts during Katrina's aftermath. Others have simply been displaced by the storm (Forliti 2005). As of late February, New Orleans has 20 percent fewer police officers and nine percent fewer firefighters than it did before Katrina (Rivlin 2006a). All 7,000 employees of the New Orleans school district were laid off (Rivlin 2005b). Additionally, most of the city's planners, building

inspectors, and demolition employees have been laid off, at a time when their services are more needed than ever (Rivlin 2006a).

Unemployment Rates

According to the Current Employment Statistics (CES) survey, the New Orleans metropolitan area lost nearly 39 percent of its workforce in September 2005. This loss drove the area's unemployment rate up to 14.8 percent from 5.8 percent in August (Lawder 2005). In December 2005, the counties with the highest unemployment rates in the State of Mississippi were Harrison, Hancock (21 percent), and Jackson (15.2 percent)—the counties with the greatest amount of storm damage (Mississippi Department of Employment Security 2006). The Gulfport–Biloxi Labor Market Area's (Harrison County) September 2005 unemployment rate was the worst in the nation at 23.5 percent—a 17.6 percent increase from August 2005 (Lawder 2005). Pascagoula (Jackson County) had an unemployment rate of 21.8 percent in September, up from 6.5 percent in August (Lawder 2005). Mobile's unemployment rate fared much better, increasing only 0.5 percent in September to 5.2 percent, from 4.7 in August (Lawder 2005).

Although the national unemployment rate dropped to 4.7 percent in March of 2006, the jobless rate for Katrina evacuees who had not returned home climbed to 34.7 percent and to 5.3 percent for those who had returned to their residences (Sayre 2006). These figures do not include evacuees living in shelters, hotels, and churches.

Labor Shortage

Counterintuitively, large pockets of labor shortages coexist with regionally high levels of unemployment. The key, here, is the loss of housing for the workforce. Without the physical infrastructure to house workers, entire regions are suffering. Hence, the areas with the most damage to housing stock are those having the greatest difficulty attracting workers. According to recent estimates (February 2006), 92 percent of homes damaged in Louisiana by Hurricane Katrina were in the New Orleans area. In total, wind and water damaged 434,216 homes in this area, leaving 207,000 uninhabitable (Judice 2006). Damaged housing is particularly a problem for the apartments that would have housed blue collar and service workers. Just over half of the residents of New Orleans were renters before the hurricane. These units were disproportionately located in lower-lying areas most likely to suffer storm damage. Consequently, the city's recovery depends on rebuilding the affordable rental units essential to attract low-wage workers (Nossiter 2006).

Nonetheless, the city has given displaced blue-collar workers decidedly mixed signals about their welcome. For example, Mayor Nagin originally approved plans to encourage low-income residents to return by providing 34 FEMA trailers in the Lakewood Estates. Yet, with the mayoral election only three weeks away, Nagin sided with protesting residents of this gated community and rescinded his plan.

Compounding matters, the neighborhood association is also suing FEMA, seeking a permanent injunction against the project (Associated Press 2006c). Although this is just one case, it is emblematic of the local political conflicts about rebuilding. Moreover, insofar as it has attracted substantial regional notice, such ambivalence significantly undermines efforts to bring in low-income, low-skill residents who could contribute to the labor pool.

As recovery efforts seek traction, an unprecedented era of job availability in south Louisiana is emerging, especially in New Orleans. The surplus of jobs in New Orleans is driven not by a robust economy but by a serious shortage of labor. Thus, according to the State Labor Department, even though both New Orleans's area hospitals remain closed indefinitely, the health care industry is particularly lacking in workers. Other industries suffering a shortage are construction, offshore work, and services—especially food and beverage and retail services (Troxler 2006b). Conversely, businesses are booming in Baton Rouge, where between 30,000 and 100,000 evacuees settled after Katrina. For example, air-shipment companies FedEx and DHL began new operations at the Baton Rouge Metro Airport after Katrina shut down the New Orleans airport. Flight activity at this airport also increased after Katrina, with 2005 passenger counts increasing by 93 percent from the previous year; about half of the airport's 2005 traffic occurred after Hurricane Katrina. The car-rental industry also saw rising profits after the deluge of refugees from New Orleans. Car rentals in Baton Rouge totaled \$28.1 million in 2005, up from \$11.8 million in 2004 (Associated Press 2006a).

Thus, much of Louisiana has become a job-seeker's market. Industries desperate to hire are raising wages and offering signing bonuses. About 28 percent of Gulf Coast employers with between four and 100,000 employees have raised wages, some increasing basic pay from six to ten dollars an hour (Seewer 2005). When Burger King in New Orleans offered a \$6,000 signing bonus to workers who would commit to one year's labor, it became a national emblem for this phenomenon.

This labor pool is sufficiently desiccated that employers are lowering their typical hiring standards. According to a labor survey (Wulfhorst 2006) conducted with 119 companies, 39 percent wanted to hire additional workers but had trouble finding them. In addition, even when companies found workers, 25 percent had difficulty keeping them (Wulfhorst 2006). In some cases, employers complained that prospective employees lacked necessary skills. Others employers opined that some of their former workers are using their FEMA and Red Cross monies to fund "vacations" and thereby taking themselves out of the labor force (Easton 2006).

Per Capita Income

The State of Louisiana is now the poorest in the nation. Using prestorm population numbers from June 2005, the Bureau of Economic Analysis ([BEA] 2006) has extensively

analyzed the relative ranking of affected states. According to this agency, uninsured losses from Katrina, combined with a \$1.6 billion dollar decrease in 2005 net earnings, drove this state's per capita personal income rate from \$27,297 in 2004, when it ranked 42nd in the nation, to \$24,820. With this 9.1 percent decline, Louisiana finds itself 28 percent below the national average of \$34,586. Conversely, Mississippi's per capita income rates increased 3.3 percent from \$24,518 to \$25,318 over a comparable period. This increase is a result of the state creating 3,000 to 4,000 more jobs this year than last year, whereas Louisiana lost 190,000 because of, in large part, the storm. Still, Mississippi ranks 49th on this economic indicator; it is the second poorest state in the nation. Alabama ranks 41st, with a per capita personal income rate of \$29,136 (BEA 2006).

Mortgages

The Mortgage Bankers Association estimates that 80,000 to 100,000 pre-Katrina homeowners in the New Orleans area did not have flood insurance. The vast majority of these homeowners are still waiting for federal and state assistance and for FEMA's post-Katrina home elevation requirements before rebuilding. Both mortgage holders and those they financed are affected by delays in rebuilding. Before the storm, only about 1.33 percent of mortgages in Louisiana and 1.77 percent in Mississippi were seriously delinquent. Yet, now more homeowners in areas disrupted by Hurricane Katrina are behind in their mortgage payments than in any other part of the country. According to a quarterly survey conducted by the Mortgage Bankers Association, 12 percent of all home-loan borrowers in Louisiana and eight percent in Mississippi were more than 90 days behind in their payments as of December 2005. This is the highest delinquency rate since the agency began collecting mortgage data in 1972. The vice president of research and economics for the Mortgage Bankers Association compares these delinquency rates to those in Alaska in the early 1980s, during the oil bust (Downey 2006).

Still, the foreclosure rate is lower than the national average because many prime lenders permitted borrowers a 90-day grace period, September to November. The mortgage industry is motivated to help owners forestall foreclosure on their homes, as these banks do not want to become holders of vast tracts of land with dubious value (LaRose 2006). As the November deadline approached, federal regulators urged lenders to provide even more time, and most have. Fannie Mae, the largest mortgage company in the nation, is allowing up to an 18-month grace period in some cases. In most cases, the deferred payments are tacked onto the end of the mortgage (Walsh 2005). The national mortgage company Freddie Mac extended its moratorium on foreclosures until May 31, 2006, in the 21 parishes and counties in Louisiana and Mississippi that suffered the most extensive damage from the storm.

However, recovery is taking longer than many had anticipated. Large numbers of storm-damaged homes are

waiting for delayed federal assistance or insurance payments before their owners can pay mortgages. Others must continue to pay a mortgage on homes that are unlivable and pay rent on temporary apartments; still others cannot pay their mortgages at all because they lack income. The high mortgage delinquency rate anticipated to occur later this year—that is, unless there is adequate federal assistance—could hurt even those whose payments are current or who own homes that had minimal damage. When many homes in an area go into foreclosure, property values typically fall as lenders liquidate properties at low prices (Downey 2006). Although many mortgage lenders are giving flooded-out homeowners as much as 18 months to resume payments, others—especially subprime lenders who serve low-income and minority borrowers—have not been so accommodating. Such subprime borrowers are also the most vulnerable to default. In Louisiana, about 24.3 percent of homeowners with subprime loans are more than 90 days behind on their mortgages; in Mississippi, about 19.8 percent are similarly delinquent. Nearly 38 percent of home mortgages to African Americans in metropolitan New Orleans in 2005 were subprime with rates above eight percent. At the time, conventional 30-year mortgages were about two points lower. African Americans in an eight-parish region secured subprime loans at a rate four times higher than white borrowers (Walsh 2005). Many loans insured by the Federal Housing Administration also are at least 90 days behind—21.1 percent in Louisiana and 13.5 percent in Mississippi (Downey 2006).

RECONSTRUCTION EFFECTS

Planning is well underway to rebuild the ravished Gulf Coast. Once the debris is removed and critically damaged structures are bulldozed, the private sector is poised to reap a windfall during the largest domestic rebuilding effort ever undertaken. Normal contracting rules have been suspended in the rush to help displaced people and reopen the Gulf Coast. Hundreds of millions of dollars in no-bid contracts have been let, and billions more will flow to the private sector in the months to come. Some critics warn that the crisis atmosphere and the open federal purse will lead to contract abuses, cronyism, and waste; subsequent inquiries into federal spending and no-bid contracts shows that such concerns are well founded.

For instance, minority-owned businesses claim that they are paying the price for the decision by Congress and the Bush administration to waive certain rules for Hurricane Katrina recovery contracts. Typically, federal contracts awarding more than \$50,000 must have a written affirmative action plan if they have more than 50 persons in their employ. But the Bush administration removed that requirement for three months, saying basic antidiscrimination laws would provide adequate protection (Yen 2005). The result has been that far more no-bid contracts have gone to businesses that have an existing relationship with

the government, including Kellogg, Brown and Root, a subsidiary of Halliburton (Yen 2005). Only about 1.5 percent of the \$1.6 billion awarded by FEMA has gone to minority businesses, less than one-third of the five percent normally required.

African American lawmakers and business people also assert that the easing of affirmative action rules for contractors and the suspension of a prevailing wage law will hurt the disproportionately large number of African American hourly workers in the region. According to the president of the National Black Chamber of Commerce, the post-Katrina work environment in New Orleans discourages and insults African Americans by making it harder for them to find work and paying them less when they do. Arguably, this body has its own political agenda. Regardless of the validity of these charges, these policy decisions have exacerbated racial concerns that already were sensitized by the slow initial federal response to the New Orleans flood. However, the U.S. Army Corps of Engineers has drawn less ire about its role in the rebuilding process. About 16 percent of its \$637 million Katrina contracts have gone to minority-owned companies. In part, such outreach has defused anger about the corps's role in designing the failed flood control measures.

On March 31, 2006, however, FEMA finally responded to increasing pressure to honor its November 2005 commitment to award federal contracts to small, local, and disadvantaged businesses for cleaning up and rebuilding the damaged Gulf Coast areas. On this date, FEMA redistributed up to \$3.6 billion in temporary hurricane-victim housing contracts to 36 small and minority-owned firms. The contracts are worth up to \$100 million each. The agency explained that it was shifting money from the four large companies who had not submitted bids for the projects—Shaw Group, Inc., Bechtel Corp., CH2M Hill Inc., and Fluor Corp—but received the awards to expedite the cleanup process (Lipton and Nixon 2006).

Yet it is not just the builders who have complained about racial and class bias. Governmental aid to their clients has also provoked similar scrutiny. Congress's original legislation to restore properties was authored by Baton Rouge Representative Richard Baker. Part of a \$30 billion plan to jump-start the state's recovery efforts, this legislation would have allowed homeowners to sell their structurally compromised property to a proposed federally supported Louisiana Recovery Corporation that would restore it. The homeowners would then have first right of refusal to buy back their homes (Troxler 2006a). On January 25, 2006, President Bush dismayed top political officials in Louisiana by refusing to support this part of the proposed legislation. Instead, the Bush administration distributed a total of \$11.5 billion in Community Development Block Grants to the five impacted Gulf Coast states. Louisiana received the largest share of the federal monies at \$6.2 billion to aid approximately 200,000 homeowners (federal law specifies that no state receive more than 54 percent of the \$11.5 billion). Mississippi received \$5 billion to help some 50,000

households and will use between \$500 and \$600 million to restore water and sewage systems damaged by the storms (Associated Press 2006d; Jordan 2006). Florida's portion amounts to about \$83 million; Alabama is earmarked to receive \$74.4 million. The State of Texas received \$75 million (Levine 2006).

In Mississippi, the details of these grants favor middle- and upper-class contractors over those with more limited means. Although the homes must be owner occupied, disbursements have several conditions that make it disproportionately difficult for poorer residents to rebuild. First, the homes must have been located outside of the federal flood zone prior to Katrina. Insofar as the poorest neighborhoods were typically older districts closest to waterfronts while middle- and upper-class suburbs were located away from the urban core, this regulation intrinsically favors the latter category. Second, the homeowner must have had some other type of homeowner's insurance to qualify. Clearly, the likelihood of buying insurance correlates with higher income levels. Third, the homeowners must agree to abide by newer and stricter building-code standards when they rebuild. Obviously, middle- and upper-class persons are most likely to benefit from these grants (Associated Press 2006b). Analysts warn that these standards will increase the price of rental units and do not meet the needs of low- and moderate-income families. Additionally, the amount of money homeowners will receive will be based on pre-Katrina property values, but adherence to the new building codes will create greater costs. Although federal law requires that only 25 percent of the grant monies go toward low- and moderate-income families, governors are responsible for deciding how to distribute the money in each state. Mississippi Governor Haley Barbour is currently working on his plan for HUD (Associated Press 2006b).

Predictably, local responses to these plans reflect preexisting partisan organization. In Mississippi, where Republicans dominate and draw their support from the middle classes that will benefit most from these Administration proposals, local officials are reportedly jubilant and grateful. "Gulf State officials have been grappling with sustaining White House and congressional interest in helping the devastated region at a time of huge federal deficits, costly wars abroad, and other federal expenses" (Jordan 2006). Conversely, in states in which Democrats dominate and draw their support from poor and blue-collar voters, the response is largely negative. Hence state and city officials in Louisiana do not believe the grant monies will suffice. In any case, to date, Congress has appropriated \$67 billion to assist the Gulf Coast region in its recovery efforts, providing an addition estimated \$18 billion in flood insurance (Jordan 2006).

Challenges hindering the rebuilding process vary across the Gulf states. Affecting all, however, is a shortage of contractors and labor power, the uncertainty regarding permission to rebuild, new elevation requirements, expanded flood zones, the difficulty in obtaining Small Business Association (SBA) loans and federal assistance, and the increased costs of construction materials and labor. And, all along

the Mississippi Coast, conflict between FEMA recommendations and resident desires is slowing the rebuilding process and "demonstrates a broad clash along the Gulf Coast over whether to cede large swaths of land to nature, to rebuild much as it was, or to rebuild homes, at a higher price, with more robust foundations and on structures that raise them above the ground" (Lipton 2005). However, in areas for which FEMA recommends increased elevation requirements, community officials do not want to force already financially strapped residents to incur the added expense of elevating their property to comply with the proposed FEMA standards. Such compliance would cost residents between \$2,000 and \$30,000 dollars, depending on the type of house and the feet of additional elevation required to bring it up to code (Lipton 2005).

In the time since the hurricane, the value of many homes along the Gulf Coast—even damaged properties—has jumped 10 to 20 percent. Homes without roofs are being sold "as-is." A call to a real-estate agent by a prospective seller fetches bids the same day. Even in New Orleans, major brokers have received calls from out-of-towners interested in buying environmentally stressed properties, including condominium developers and a New York-based real-estate investment firm willing to spend \$25 million on multifamily apartment complexes (Rivlin 2006b). Condos are increasingly popular in the city right now, perhaps because they allow people to live high above sea level in structures unlikely to blow over in a storm. Because of this boom, the cost of building a new home has increased from \$80 per square foot to \$99. Wages in the construction sector are also rising as companies pay a premium for scarce workers. An electrician in the Eagle Point subdivision of Biloxi who owns his own firm complains that his workers are quitting and going to work for out-of-state contractors who are paying four dollars more per hour.

Rebuilding has also revealed intractable conflicts over which neighborhoods are "worthy" of historic consideration in the recovery process. In New Orleans, displaced residents from Louisiana fear that the state has no plans to rebuild historically African American and impoverished areas, such as the Ninth Ward. In particular, developers and architects favor New Urbanism—"a sentimental and historicist vision of how cities work"—as a model for how to rebuild the city (Ouroussoff 2005). "Meanwhile, those who favor a more complex reading of urban history—one that embraces 20th and 21st-century realities as well as the 19th-century charms of New Orleans—risk being relegated to the margins" (Ouroussoff 2005). Such planners are seen as ignoring the desperate need to restore destroyed low-income housing. The National Low Income Housing Coalition estimates more than half the housing destroyed by Katrina were rentals, about 70 percent of which was affordable to low-income renters. For both urban theorists following Jane Jacobs, who value the vital messiness of urban vernacular, and those who would restore lost housing for the poor, it is easy to hurl charges of elitism at the planners working to restore New Orleans.

GENTRIFICATION

The coastal destruction wrought by Hurricane Katrina has accelerated gentrification processes, primarily along the Mississippi Gulf Coast. Ironically, successful rebuilding itself creates new challenges for the region's poorer inhabitants. As far as they are concerned, such gentrification creates difficulties on three interlinked levels: housing, jobs, and culture.

It is almost a truism that poorer people inhabit older, less well-maintained buildings. Such units have already repaid the costs of construction over a lifetime's depreciation. Consequently, their rental cost or purchase price represents just their residual value plus any market speculation. Conversely, the first purchaser of new construction must finance the entire cost of the building plus a profit for the developer. As a result, new construction will disproportionately attract wealthier buyers. By destroying much of the region's older housing stock, the hurricanes created fresh incentives for gentrification.

The initial stages of rebuilding have followed these trajectories. While city officials in New Orleans grapple with how to pay for the costs of rebuilding and urban-planning issues, land speculators are rapidly buying damaged and destroyed waterfront properties along the Mississippi coast, eager to replace public fishing marinas and docking areas with high-rise condominiums and private marinas. Biloxi, in particular, is experiencing an unprecedented, city-approved, post-Katrina land boom. As of August 2005, condominium developers had proposed building close to 3,000 units in Biloxi. By the end of November, the total number of units proposed rose to 9,587. To accommodate this prodevelopment climate, the city is considering a proposal to increase its density ordinances from 30 to 40 units per acre for developments that sit on more than ten acres of land. The proposal would also allow an increase in the density of waterfront developments from 30 to 110 units per acre (Newsom 2006). At this point, however, demand for these units is speculative; opponents argue that overpriced units could flood the market and potentially stall the recovery process. Moreover, the arrival of speculators imperils what remains of bungalow neighborhoods that are among the Gulf's oldest communities—close-knit places of modest means where casino workers, fishermen, and their families could still afford to live near the water. Many of these residents are underinsured and, with few alternatives, will see no choice but to sell.

In a similar fashion, proposed condominium developments have well outpaced rental construction. Again, this process is most apparent in Biloxi. To date, no developers have proposed any apartment complexes or affordable housing units to house returning tourism and gaming workers. As noted by Mayor A. J. Holloway, inflated land prices, proposed elevation requirements by FEMA for buildings, and fragmented ownership of property present obstacles to the creation of low-income or affordable housing (Wilemon 2006b). As a result, residents with limited resources have few options except retreating from the urban core.

Well-paying, long-term, blue-collar jobs are also retreating in the wake of these storms. Again, although prevalent throughout the region, this trend is most visible in Biloxi. Most obviously, this city is confronting the loss of its shrimping industry. In part because insurance companies are not fully remunerating for damages, seafood processors in Biloxi's Back Bay and Point Cadet are rapidly selling their piers and plants to developers. With high levels of damage and little financial aid on the way, some plant owners are leaving the business, including the owner of the Golden Gulf Coast Packing Company who has sold his land site to condominium developers. He points out that although all of the processors in the area initially said they planned to rebuild, many may be tempted to sell as he did. Currently, Biloxi waterfront property is selling in excess of \$2 million per acre (Newsom 2006). Such inflated property values means less affordable real estate available for processors. Increasing property values and waterfront development also means that the predominantly Vietnamese community of shrimpers will be forced to find other places to live, dock, and sell their catches (Schwartz 2006).

However, city officials describe themselves as "working" to protect the interests of shrimpers who fear displacement as seafood processors sell their waterfront properties to condominium and casino developers (Wilemon 2006b). Mayor Holloway acknowledges that "if they don't have a place to dock, they're not going to come back. I don't want that to happen. The Vietnamese community is an important part of Biloxi" (Wilemon 2006b). At least in form, the mayor's remarks echo those of community analysts who point out that it will be in Biloxi's best interest to engineer a compromise that will give processors ample incentive to remain along the Back Bay while giving developers free rein to build condos that will support the area's economic revitalization. "While the tax rates from luxury residences are appealing, in the long run, a balanced economy grounded in both traditional industry and tourism will prove the best safeguard against future downturns" (Schwartz 2006). Nonetheless, however, there are intrinsic trade-offs between the shrimping industry and the waterfront development that Biloxi will have to make. Either it will have to constrain waterfront development or accept a declining shrimping industry.

In Louisiana, the conversion of coastal space for housing also increasingly displaces low-income fishery participants and waterfront fishing businesses. Compounding matters in Louisiana, of course, is the extensive use of coastal wetlands and coastal properties by the oil and natural gas industry. As a corollary, there is limited coastline available for development. By so restricting the supply of developable land, remaining coastal properties have become increasingly valuable, enabling only the affluent to buy. Such buyers typically then build expensive homes—driving tax rates and values even higher. Historically, this process occurred near New Orleans where wealthy urbanites built second homes along the coast. This trend toward coastal gentrification has been centered primarily in four primary

regions in Southeast Louisiana: South Plaquemines Parish (Venice), South Lafourche Parish (Port Fourchon), South Jefferson Parish (Grand Isle), and South Terrebonne Parish (Cocodrie).

In Louisiana such coastal gentrification has historically correlated with increasing charter fishing businesses that then compete with commercial fishermen. In particular, Grand Isle has long been a getaway for Louisianans, with guides and charter operators catering to this clientele. Charter operations in Venice and Cocodrie have maintained a largely corporate clientele. With charter operations in both Venice and Cocodrie severely damaged by Katrina, many charter boat captains and guides are relocating in Grand Isle, at least temporarily. The ultimate effects of the storm on the trend toward gentrification and changes in the distribution of recreational fishing activities along the Louisiana coast remain uncertain at this juncture. Nonetheless, increasing competition with commercial fishermen is certainly a possible consequence of such coastal gentrification.

Similar coastal gentrification is also incipient in coastal areas of Alabama. In particular, land investments along the coast of Bayou la Batre in Mobile County have accelerated in the wake of Katrina. The St. James Development Group (SJDG) from Greenville, for example, is in the process of purchasing 18 acres of coastal property, with options to purchase many other parcels on the bayou. This city-owned coastal land was the site of several commercial unloading docks before they were destroyed by Katrina. With the stated intension of “diversifying” this fishing community, SJDG has long-term plans to build 6,000 waterfront condominiums. Commercial fishery participants in this area are disheartened by this development. “Land used to be city docks, unloading shrimp and other seafood. That’s all over now. There isn’t a future for shrimp. These people can’t operate. Most shrimp boats have been seized” (conversation with author, January 4, 2006). Should the sale go through (public debate continues), the development will certainly further marginalize the commercial fishing industry in this coastal region. The net effect could result in a “clean slate” for post-Katrina Bayou la Batre.

Communities will be reorganized, not just rebuilt. Typically, officials will be tempted to exclude the poorest, “least productive” segments of the population, striving to make the area appear cleaner, providing safer environs for tourists, and reducing the continuing demand for social services. This could mean gentrification on a scale previously unimagined.

Gentrification was underway in coastal Baldwin County and has been accelerated as a direct effect of Hurricane Katrina. Condominium developments have been steadily increasing since 1995, primarily in the southeastern coastal communities of Orange Beach, Gulf Shores, and Bon Secour. Historically, this region has been home to a large charter fishing fleet. Charter guides initially benefited from the influx of new residents and second home owners settling in along the coast, but they are now being priced out of the area as developers purchase existing marinas and

dock space and replace them with luxury housing. One informant notes, “Privatization is huge here. Marinas are privately owned, commercially owned. In a few years new marinas will be developed, for new access” (conversation with author, December 21, 2005). Hurricane Katrina, in destroying so many commercial fishing vessels and the associated demand for associated services, has helped to accelerate these trends.

In sum, condominium developments and tourist attractions like casinos are competing with established fisheries for limited space in all three states. Although these industries diversify local economies, they also clearly transform them. The buyers of these new properties are typically affluent outsiders. At the same time, the retail and service jobs generated by these new residents are typically lower paying than those in the fisheries they displace. Certainly, the same process is also true of the casino industry. As a result, the hurricanes accelerate the “hollowing out” of the local economy. Whereas the fishermen who were once relatively well paid were an engine of local industry, their jobs—and the services that support them—are now on the decline. Instead, the economy is increasingly bifurcated between well-paid newcomers and an underclass of low-paid service workers.

It is this last detail that signals a cultural shift. Fishery jobs were a symbol of local tradition and financial and personal autonomy. As the rebuilding accelerates gentrification and draws in wealthy newcomers, Hurricane Katrina represents an important marker that will auger in a cultural transformation.

“CASINOFICATION”

Even before Hurricane Katrina, the Mississippi Gulf Coast’s economy was increasingly dependent on gambling. Indeed, this part of the Gulf Coast had become the Southeast’s center for the gaming industry. In 2004 Mississippi’s casinos brought in \$2.7 billion in revenues, third behind Nevada and New Jersey (\$10.3 billion and \$4.8 billion, respectively). This figure does not include the state income taxes paid by the 17,000 people employed by the gaming industry, the sales taxes paid by the casinos, the property taxes they pay, and indirect economic benefits. Katrina visited a wrathlike vengeance on the gaming industry in this region. Yet, by both clearing the ground of competing industries and instigating a sense of urgency, this disaster has paradoxically accelerated the expansion of gambling’s interests and political control over future development in the state.

All 13 hotel-casinos on the Mississippi Gulf Coast were destroyed, including seven in Biloxi (Associated Press 2005). The resulting loss of tourism and gaming revenues resulted in a 70 percent reduction in state tax revenues in the wake of the hurricane (CBS News 2005). Further, the state lost about \$500,000 in revenue every day that the Biloxi-area casinos were closed, not counting the revenue attached to the hotels and restaurants serving the casinos (Abraham 2005). In Biloxi alone, casinos employed 15,000 workers and

generated \$19.2 million in tax revenues—which is more than double the amount the city collected from property taxes (Rivlin 2005b). It must be acknowledged that long before Katrina made landfall, Mississippi's Gulf Coast had already become irreversibly dependent on the gambling industry.

Hence, it is unsurprising that this industry is now seen as the regional savior. Whereas Mayor Ray Nagin's plans to revive New Orleans's destroyed economy with casinos were met with strong opposition, Biloxi Mayor A. J. Holloway has been successful in rallying city officials, residents, and developers around a plan to turn Biloxi into "another Las Vegas." Indeed, Holloway asserts that "legalized gaming is going to be what saves us" (Rivlin 2005b). To facilitate this plan, Governor Haley Barbour signed legislation allowing casinos to build up to 800 feet inland. Civic leaders anticipate that the new land-based casinos will provide an economic boon for the region, bringing in much-needed jobs and tax revenues (Associated Press 2005). All ten casinos in Biloxi say they intend to rebuild, and most are planning bigger, more elaborate establishments. Harrah's Entertainment, the largest gaming company in the world, intends to invest upward of \$1 billion dollars in two new land-based hotel-casinos—an investment that rivals the scale of Las Vegas resort-casino projects (Wilemon 2006b). The executive director of the Mississippi Gaming Commission also acknowledges that about a dozen developers have expressed interest in building casinos in Biloxi since the storms. He anticipates that Biloxi will have three or four more new gaming halls by 2007 (Rivlin 2005b). Gaming officials conservatively project that, within two years, Mississippi's coastal casinos will generate \$2 billion in profits and contribute over \$240 million to the state and county (Rivlin 2005b). Indeed, they have already made rapid progress in this direction. By mid-December of 2005, three of Biloxi's hurricane-damaged casinos had already reopened to large and eager crowds (Wilemon 2006a). Certainly, Katrina has accelerated Biloxi's transformation into a regional gambling center.

At the same time, this growing industry will put increasing pressure on older, noncasino hotels. Although the revenue generated by expanding resort-casinos will lead Biloxi's recovery efforts, they will also confront "mom and pop" noncasino beachfront hotels with competition with deep pockets. Suffering from extensive damage, these hotels certainly do not need competition with alternative and steady revenue streams. According to the Hotel, Motel, and Lodging Association, 51 of the noncasino beachfront hotels in Gulfport and Biloxi are either destroyed or too damaged to reopen while eight are operating at diminished capacity. In Biloxi, nonbeachfront hotel rooms are down to 388 from 3,252. In Gulfport, the post-Katrina drop is from 2,468 to 1,099. Hotel owners who wish to rebuild face significant and costly challenges. Compliance with new post-Katrina regulations that require hotels to be elevated at least 28 feet above sea level will cost hundreds of thousands of dollars, thus effectively pricing many small hotel owners out of the market. Smaller property owners also are receiving

offers from corporations and condominium developers to buy their land, and at least nine are considering these offers (Thomas 2006).

IMPACTS ON COMMERCIAL AND RECREATIONAL FISHERIES

From the Mississippi Sound through the Louisiana Delta, Hurricane Katrina decimated infrastructure associated with commercial and recreational fishing, detrimentally affecting and displacing thousands of commercial fishery participants. Losses to man-made, marine-based infrastructure is estimated at \$330 million throughout the Gulf, while losses from incomplete commercial fishing trips are estimated at \$490 million in lost dockside commercial revenues (NMFS 2005). The fishing industries in Southeast Louisiana and coastal Mississippi and Alabama experienced the greatest amount of storm-related damage.

Hurricane Katrina also disrupted the charter-boat industry in this region, destroying nearly half of its Gulf Coast fleet. Gulfwide losses of recreational fishing trips resulted in \$990 million in unrealized revenue from incomplete economic activity, which includes lost revenues from restaurants, lodging, marinas, and general tourism (NMFS 2005). One of the biggest challenges facing the charter-fishing industry is the lack of support infrastructure. Motels for housing clientele are severely damaged; bait has been extremely difficult to locate; and without New Orleans as a functioning tourist destination, fishing-related tourism in the general region is down significantly.

Impacts on Louisiana State Fisheries

Fishing communities along Louisiana's southeastern coast have been particularly hard hit, disrupting both the state's shrimp and oyster fisheries. Marinas, icehouses, boat launches, docks, piers, seafood restaurants, vessels, bait and tackle shops, and processors have in large part been destroyed in these areas, thereby crippling the commercial and recreational fishing industries there (Louisiana Sea Grant College Program [LSGCP] 2005b). Few commercial fishery participants in the area have anything left to fish with. Although the shrimp fishery is thriving in the post-Katrina environment, fishery participants who are sufficiently fortunate to operate intact vessels and reach the fishing grounds have no reliable means for distributing or marketing the product. At the same time, as much as two-thirds of the state's oyster beds were detrimentally affected by the season's hurricanes; damaged beds could take up to two years to return to life, as oysters die or diminish significantly when beds are upturned by storm surge or silted over by storm-driven mud and sand (Louisiana Sea Grant College Program [LSGCP] 2005; Wulffhorst 2005). Seafood landings have necessarily shifted to the west. State officials estimate Katrina-related losses to Louisiana's seafood industry at about 40 percent of the industry's annual total retail value or \$1.3 billion (Wulffhorst 2005).

Impacts on Mississippi State Fisheries

Hurricane Katrina also seriously damaged fisheries in Biloxi, Gulfport, and Pascagoula, rendering 70 percent of the state's commercial fleet and most of its seafood dealers and major seafood processing plants inoperable (Mississippi State University, Sea Grant Program 2005). Annual losses to Mississippi's commercial and recreational fishing industries are estimated at \$170 to \$200 million. This estimate does not include an additional \$10 million dollars needed to repair damaged marinas, piers, ice houses, wharves, boat ramps, and related marine-based businesses. Estimates of recovery time for each facility vary from a few months, for those with relatively minor damage, to more than one year.

Impacts on Alabama State Fisheries

Katrina destroyed 60 percent of the commercial shrimp fleet in Bayou La Batre, one of Alabama's top-producing ports. Prior to Katrina, some 80 percent (2,700) of workers in Bayou La Batre found employ in the commercial shrimping industry; approximately 75 percent of shrimpers lost their primary source of income as a result of this storm. At the same time, the collapse of the oyster fisheries in Louisiana and Mississippi has resulted in an economic boon for Alabama harvesters, with prices for Alabama's oysters tripling after Katrina from what they were last year in September 2005 (Raines 2005).

Prospects for Industry Recovery

In the post-Katrina environment, many fishery participants are discovering that having insurance is no assurance of receiving recovery benefits. Although financial institutions mandate insurance coverage on a financed vessel, some insurance companies are not forthcoming with due compensation. In many instances, insurance companies rejected the claims if vessels damaged by Katrina's winds were further damaged by Rita's waters. Nor has financial aid to help restore Gulf Coast fisheries and assist struggling commercial fishery participants been forthcoming. As of mid-April 2006, the "failure of fishery" in the Gulf of Mexico issued on September 9, 2005, by Secretary of Commerce Carlos Gutierrez has thus far resulted in virtually no aid for Gulf Coast fishery participants.

Fish-processing firms are probably insured and will be able to rebuild; however, they may not risk reconstruction without first having an assured source of fish. Even optimistic assumptions will not have the fisheries operational for many months—perhaps years. Markets will then have been lost, some permanently, to other sources of supply—including international sources, thereby accelerating an existing trend. Fishery participants in Texas and other outside fishermen, unaffected by the hurricane, now have sole access to the entire western Gulf. Although the fishery resources are probably unaffected, it will take a generation for the Louisiana, Alabama, and Mississippi fisherman to recover.

Prospects for Community Recovery

Although the economic loss figures stated above highlight the extent to which Hurricane Katrina has devastated this industry, they do not reveal the impact this storm had on individual fishery participants or communities. And, although the major Gulf of Mexico (GOM) fisheries may eventually recover from the storm's destruction, this will require a protracted period of adaptation and change that may not bode well for individual fishermen and certain fishing-involved communities in the particularly hard-hit areas. Undoubtedly, some commercially oriented participants will leave the trade and never come back. Some fishing-oriented villages will not be rebuilt. However, most fishery participants we interviewed want to return to the industry; thus, we ask whether significantly disrupted fishing communities can regroup, rebuild, and return to the waters in the post-Katrina environment, or whether the combined forces of great economic loss, minimal federal assistance, civic marginalization, and industry instability will result in their permanent displacement. A brief overview of the impact of Hurricane Katrina on the primarily Vietnamese fishing community in Biloxi's Point Cadet area will illustrate the urgency of this question.

Point Cadet

The vast majority (95 percent) of commercial shrimpers in Mississippi are Vietnamese. In Biloxi, most reside and dock their boats in the low-lying Point Cadet area. Hurricane Katrina destroyed most of the marine-based infrastructure along the Mississippi Gulf Coast and nearly all of the homes (3,500) in Point Cadet. Much of this community is now displaced.

In addition to purely economic considerations, several sociocultural factors complicate this community's short- and long-term recovery prospects. Language, literacy, and cultural competency issues are the greatest barriers Vietnamese Americans face when trying to access FEMA or other forms of federal assistance. Additionally, the rather insular nature of this enclave means that, for the most part, they are not plugged into mainstream sources of aid. Many also lack the experience or cultural proficiencies to access resources outside of their neighborhood, or they do not realize they might be eligible for government loans and grants that could help them rebuild boats and homes. This cultural cleavage results from a cultural orientation toward reliance on extended and often informal networks of community and kin for financial assistance rather than on other formal distributional networks.

Despite great economic loss and community disruption, however, the majority of Point Cadet's fishing families want to return to this area and resume shrimping. At the same time, aggressive community developers and entrepreneurs perceive this most recent destruction as a "tragic opportunity" to redefine the "seafood capital of the world" as "Las Vegas of the Gulf." The proposed casino developments and skyrocketing property values that have ensued

in Katrina's wake will make it impossible for this fishing enclave to return to Point Cadet in its previous capacity, if at all.

Thus, despite more than 100 years of viability, the future of Biloxi's shrimping industry is tentative at best, and the degree of continued participation in the commercial fishing industry by current and recently displaced fishery participants is unknown. Individual attempts to recover can only be as successful as their civic leaders' commitment to rebuilding essential marine-based infrastructure and services—including, but not limited to, access to loading, unloading, ice and fuel, and repair facilities. Widely varying political agendas that pit the shrimping industry's economic and cultural value against the gains of expansion, gentrification, and coastal development will ultimately decide the future of the industry. And, given that we may indeed be entering a long era of heightened climatic challenges (Patz et al. 2005) and the dramatically deleterious consequences of the hurricane season of 2005 amidst preexisting trends of decline, the future viability of commercial fisheries in areas decimated by the recent storms appears truly uncertain.

POLITICAL RAMIFICATIONS

The toll exacted by Hurricane Katrina goes beyond human, economic, and social costs. The hurricane created deep political schisms, and charges of inadequate response at the federal, state, and local level will no doubt resonate for years to come. The federal government has taken the brunt of these accusations, resulting in plummeting approval ratings of top government officials and the resignation of the then FEMA Director, and contributing to presidential approval ratings declining into the 30th percentile. The general perception of the federal government's failed emergency response has had international, national, and local political consequences. Katrina came at a relatively low point in the Bush administration's relationship with the world community, and its response to the disaster has done nothing to improve international perceptions. Over 100 countries felt the need to offer the United States assistance in addressing unmet humanitarian needs. Although the sums were not particularly large, it is important to recognize that the very idea that the world perceived the United States as being unable to adequately meet its own human and financial emergency response needs represents what can only be described as a "paradigm shift" in world perception of U.S. capabilities and a general shaking of world confidence. It is difficult to ignore the message, or irony, when Islamic nations are sending the United States over \$1 billion in humanitarian assistance for Hurricane Katrina victims. Even Libya's Mu'ammar al-Qadhafi, whose relationship with the United States is tense at best, contributed \$100 million to the relief effort.

The political ramifications of the hurricane, however, are most evident and explosive at the regional-local scale. The political discourse in every community in the affected

area—indeed, throughout the region—has been directly or indirectly affected by the hurricane. Although the nexus may be strong or weak, depending on the nature of the physical or economic effects, the hurricane has effectively altered the content and values of local ideologies and both transformed old political cleavages and created new ones across the region.

As the largest and most populous area affected by the storm, we will use New Orleans as an example. Although Katrina passed well to the east, the "eye" of the resulting political storm has centered on the city. Importantly, its displaced residents were disproportionately African American. By any calculation, the future city and its suburbs will have a higher proportion of white residents than they did before Katrina (see demographic section). If the most restrictive limits on rebuilding in low-lying, largely African American, districts are enacted, then a majority of voters in upcoming elections are likely to be white (Dao 2006). By putting in question New Orleans's long-standing African American majority, Katrina has made race an increasingly important political variable, and the political consequences have been manifested in many areas. For example, each of the three major mayoral candidates and their supporters in New Orleans's first post-Katrina elections found pointed means to signal racial alliances (Nossiter 2006). Ray Nagin's successful mayoral election in 2002 resulted, in large part, from a campaign strategy focused on the middle and working classes, downplaying racial and ethnic differences. In light of changes in the racial composition of the remaining electorate, the incumbent Mayor now employs a more direct and ardent appeal to the African American constituency—"God wants" New Orleans to be a "chocolate city"—invoking the former majority's electoral insecurity to motivate turnout (Dao 2006). Nagin later apologized and retracted the statement, perhaps already signaling a shift in the demographic profile of the city.

Even among the evacuees, race has assumed an elevated level of importance. Across the diaspora, efforts to mobilize voters—like those of the Jeremiah Group, ACORN, and the Metropolitan Organization—increasingly have their forums saturated by cultural markers serving as proxies for racial identities. Thus, Katrina's selective depopulations have given political actors renewed incentives to reify ethnic identities.

Yet, it is the sheer numbers of displaced persons that potentially create Katrina's most profound political effects. Cities as diverse as Baton Rouge and Houston have absorbed many new African American voters. Houston, alone, has absorbed an estimated 150,000 primarily African American evacuees. Historically divided between white, Latino, and African American voters, long standing political balances are likely to be reshuffled once these displaced persons start voting in their new jurisdictions. Moreover, Katrina-initiated demographic shifts are certain to have profound implications not only for the upcoming mayoral race but for 2010's reapportionment at both federal and state levels. To the extent that these migrations become permanent,

New Orleans stands to lose representation while communities that have taken in its residents stand to bolster their electoral clout.

EMERGENCY RESPONSE CATASTROPHE

The delay and mismanagement of the initial response has affected the psyche of the entire nation, illuminating the critical importance of an effective emergency response. The experience of the San Francisco Bay Area Disaster Medical Assistance Team (DMAT CA-6), which was sent into the New Orleans Superdome to relieve the New Mexico DMAT, is an illustrative and painful example. The CA-6 team arrived with additional personnel from the Arkansas and Nevada DMATs on the afternoon of Tuesday, the 29th of August, under police escort to relieve the New Mexico team as the Superdome continued to fill with desperate victims of the hurricane, and with the injured and ill evacuated from local nursing homes and care facilities. Without water, sewer, or electricity, all of the facilities, and then the hallways and corridors, filled with the human waste of thousands of evacuees, which combined with 100-degree temperatures, high humidity, and a lack of ventilation to create intolerable conditions. Evacuees were unable to leave the dome as the water level outside was waist deep and higher. Conditions continued to degenerate by the hour, as the number of patients in need of emergency services—trauma, acute asthma, hyper- and hypoglycemia, women in labor, severe dehydration, renal failure, drug and alcohol withdrawal, and psychotic breaks—continued to increase.

As the number of critically ill and “expectant” (i.e., those living patients “expected” to perish from their wounds or illnesses) patients continued to mount, and with no beds, and little food, water, or space to be spared, patients had to be evacuated by helicopter via the hot, exposed rooftop of the dome’s parking structure. The images of these extremely ill, dying, and even dead patients lining the rooftop continue to haunt the members of this team. Matters were to worsen still. With the meager and poorly distributed food and water supplies, not to mention the lack of medical resupply or adequate communication, the members of the team, already with limited water themselves, found themselves confronted by hundreds of desperate evacuees, concerned less and less with medical attention than with basic survival: food, water, safety and security, and evacuation.

Although able to negotiate through these confrontations by proving their own desperate supply situation, the dangers continued to mount. The medical team began seeing trauma patients resulting from evacuee-on-evacuee violence within the Superdome: assaults, rapes, a stabbing, a gunshot wound to a soldier. Emotional patients and evacuees began stealing medical supplies, demanding that their needs be met, and threatening and fighting with medical team members. Anger and frustration among some of the evacuees erupted into gunfire from adjacent buildings, resulting in the termination of helicopter evacuations. With

only a limited security detail from the Louisiana National Guard to control an increasingly hostile population, these security forces finally notified the medical team that they feared a riot would erupt and that they needed to withdraw their direct protection of the medical team to provide a “line of defense” between the 30,000–60,000 evacuees and the medical team and its 2,000 remaining medical and special needs population (over 800 had already been evacuated). The repositioning of these security personnel effectively brought the mission to an end. The final step in the process would be the extraction—an orchestrated plan to quietly remove, in small groups, the members of the team to a waiting vehicle, and an exit by stealth from the facility—leaving the dead, dying, injured, ill, starving, and dehydrated population of evacuees to fend for themselves until the military could move in to restore order. A traumatic and ignominious end of a well-intentioned but inadequately supported mission of mercy.

INTERIM CONCLUSIONS

In this article we have attempted a preliminary examination and analysis of the social, demographic, cultural, economic, and political effects following the assault of Hurricane Katrina. Although formal recommendations are, to a large degree, beyond the scope of our work, both the issues themselves and our on-the-ground experience compel a response to what we believe are monumental errors of public policy.

The principal public policy question resulting from Hurricane Katrina is whether or not New Orleans, and the communities of the Mississippi Delta, can or should be rebuilt; and if so, how? On one side of the debate are those wondering whether or not New Orleans “can” be rebuilt in a manner that satisfies a number of critical goals. Given the inevitability of another hurricane, can we ensure the safety of residents and survivability of property? Moreover, how do we revitalize traditions of cultural diversity in the context of continuing subsidence and habitat destruction? Among the skeptics that question reconstructing New Orleans and the more remote Mississippi Delta communities, there is an acknowledgement that protecting against even a Category 2 hurricane may prove an insurmountable task.

On the other side of the debate are those who argue that New Orleans is one of the largest and most important U.S. cities. They note that it was governmental shortcomings and shortsightedness that led to the destruction of this vital U.S. port and recreational destination. The nation is therefore morally obligated to fund its recovery, including the construction of adequate future levees, coastal protections, and an environmentally appropriate delta restoration. Tacitly adopting this second position, the President has promised \$240 billion dollars for the reconstruction of New Orleans and Gulf of Mexico communities. Unfortunately, even if this amount is actually appropriated and the required actions promptly initiated (and many question

the sincerity and duration of the commitment), it may not prove enough.

In any case, it is this reconstruction effort—and how it is pursued and accomplished—that will be the source of the most enduring impacts. The investment required to rebuild these cities, communities, and public infrastructure will represent an injection into the regional economy that will dwarf other impacts resulting from individual rebuilding efforts—the “casinofication” and “gentrification” of the coast or impacts to the region’s coastal fishing economies. And, regardless of the public policy decision, these costs must inevitably be borne by all U.S. citizens through either higher taxes, human welfare program reductions, or other far-reaching adjustments in the national budget.

Unfortunately, taken in their entirety at the federal, state, and local levels, the recovery efforts now underway and planned in the Gulf will yield a single certain outcome: the replication of conditions prevailing at the time Hurricane Katrina struck on August 29, 2005. If existing trends continue, inconsequential improvements will have been made to strengthen the existing levee system. Local building codes would merely require homes on three-foot pillars to protect against ten-foot flood levels. Federal insurance programs, for buildings located below sea level, will be restored, guaranteeing that U.S. taxpayers will bear the costs of subsequent hurricane destruction. Protective coastal habitats might be “restored” but not enlarged; furthermore, even assuming no intervening hurricanes, they would not reassume their protective status before 2050. The principal underlying problem is that there is actually no plan under consideration that could ensure the safety of the city of New Orleans, Louisiana delta communities, and coastal Mississippi and Alabama against the inevitable Category 4 or 5 hurricane.

On the basis of the work undertaken, we are confident that many families would willingly return home under more favorable conditions. The actions necessary to provide such favorable conditions, however, are fraught with risk. Should the government, at whatever level, provide “incentives” for residents to return and rebuild their homes? Should government rebuild the sewers, water supply systems, electrical grid, and roads to underwrite the costs of the reconstruction process in areas certain to be destroyed once again, by the next Category 3 hurricane? Should government continue to waive national FEMA insurance standards to enable reconstruction of homes below sea level? Should government subsidize the cost of constructing low-income housing to help restore a balanced or comparable ethnic and racial composition? Can any of these decisions be made without first providing a guarantee that the city will not be destroyed by the next Category 3, 4, or 5 hurricane to strike the area? These are immense questions of public policy that can only be addressed by Congress and the president.

Thus far, however, such assurances have not been provided. Nevertheless, states, communities, and individuals are moving forward under their own assumptions concern-

ing future risk. In Mississippi, casino operators are aggressively implementing their plan for the “Las Vegas of the Gulf,” wealthy and insured homeowners are seeking contractors to rebuild even more massive and luxurious homes on the water’s edge, while the local poor, unemployed, and uninsured land owners are selling their lots to the highest bidders. In Alabama, plans underway before Katrina to gentrify and commercialize Bayou la Batre have been strengthened and accelerated, while even larger second homes are being reconstructed on Grand Isle—this time on even higher stilts.

Vast investments have been committed by private citizens to replace, upgrade, or expand homes, businesses, and other coastal facilities. It is important to recognize that the early expenditures represent the beginnings of a self-fulfilling prophesy of “Gulf reconstruction.” These massive initial injections of federal, state, or commercial resources in a particular area or in a particular industry (e.g., tourism, recreation, commerce, or fishing) will certainly trigger subsequent private and public investments. As we have observed in many previous natural and technological disasters, particularly in the days immediately following the *Exxon Valdez* oil spill, there is great power in the initial step. Once taken, such path dependence becomes increasingly difficult to resist. If, as now appears clear, the first step is to recapitulate past errors with minimal reflection on the cumulative human and economic costs of rebuilding the city over and over again, then preparation should begin immediately for the planned repetition of Hurricane Katrina.

Unfortunately, despite the catastrophic destruction wreaked by Hurricane Katrina and the subsequent Hurricane Rita, these effects may be minor compared to the devastation caused by future hurricanes. As we have discussed, hurricanes are predicted to become more frequent and more severe over the next several decades as the world’s climate continues to progress through critical environmental tipping points. As a result of increased atmospheric temperatures, ocean temperatures will continue to rise, generating hurricanes that may become megastorms. Accelerated by efforts to control water flow, shorelines will continue to erode and thereby remove natural protections for coastal areas. Populations will continue to grow in vulnerable coastal areas and thereby increase the scale of future catastrophes. It is therefore of vital importance that we examine and analyze the human, economic, and natural processes of rebuilding, reintegration, migration, and readjustment following this expansive disaster. Further research is urgently needed—if not to prevent future megadisasters, to at least better understand how to respond to their aftermath.

One thing is certain, regardless of which perspective is taken: The present trajectory, unguided by principal or plan, will lead to greatly elevated vulnerability to future floods and hurricanes. The scrambling, haphazard sequence of federal, state, and local efforts paired with family and business reconstructions are doomed to replicate pre-Katrina conditions—in the context of decimated coastal habitat protections and weakened levees and infrastructure.

Fearing that delay could mean fewer resources allocated to reconstruction efforts, it is natural that residents and leaders will be eager to reestablish their former lives and homes. Nonetheless, it would not be a wise use of national, state, or local human and economic resources to pursue a reconstruction strategy doomed to repeat precisely the mistakes of the past. A fully integrated, rational, and socially acceptable plan, from both national and local perspectives, must be developed and employed to channel redevelopment of the region in a socially desirable direction.

Our work, moreover, also indicates that many of the socially, politically, or culturally “desired” outcomes will be difficult to achieve—and, in some cases, impossible. For example, the goal of restoring or, better, reestablishing ethnic diversity to the most devastated areas of New Orleans cannot be achieved. Profound social forces are operating to attach evacuees to their new residences and inhibit their return to their former homes. Construction of housing to attract and accommodate former low-income residents, regardless of federal or state underwriting, will fail. The passage of time will strengthen these forces, not weaken them. At the same time, the reconstruction process has already drawn in large numbers of Central American workers in need of housing—with their likely tenure measured in years, not months. Insofar as post-Katrina New Orleans will be substantially more Hispanic than before, those that advocate systematic replication of past ethnic and cultural distributions are going to be frustrated.

We have also observed that, in addition to aggravating demographic changes, there is a tendency for aid and reconstruction benefits to differentially benefit the wealthy, thus accentuating existing socioeconomic inequalities and magnifying the storm’s disproportionate impact on the poor (and continuing the government’s disproportionate support of the wealthy and white).

Assuming a continuation of present federal expenditure patterns for the reconstruction of New Orleans and other Gulf communities, the massive injection of employment and expenditures in the region over the next five to ten years will create extended local boom conditions. As was the case for local expenditures in the wake of the *Exxon Valdez* oil spill, however, where the vast majority of the resources committed to clean-up activities (over \$2 billion) were siphoned out of state with little or no lasting local economic benefit, the enduring effect of post-Katrina investment is likely to remain an open question. If an integrated plan is not soon formulated and imposed, ten years from now we will again be facing identical risks and wondering, “where has all the money gone?” and “why didn’t we learn from our mistakes?”

JOHN S. PETTERSON Impact Assessment, Inc., 2166 Avenida de la Playa, Suite F., La Jolla, CA 92037

LAURA D. STANLEY Impact Assessment, Inc., 2166 Avenida de la Playa, Suite F., La Jolla, CA 92037

EDWARD GLAZIER Impact Assessment, Inc., 2166 Avenida de la Playa, Suite F., La Jolla, CA 92037

JAMES PHILIPP Impact Assessment, Inc., 2166 Avenida de la Playa, Suite F., La Jolla, CA 92037

NOTES

Acknowledgments. We wish to begin by acknowledging the other members of the field team, including Pamela Goode, Terra Tolley, Tibora Girczyc-Blum, Katherine Rodela, and Jennifer Smith, whose commitment to the research and perseverance under extremely difficult field conditions went far beyond the call of duty. Most importantly, all of the members of the research team wish to acknowledge the unflinching and generous participation of over 2,000 field informants, businessmen, fishermen, and municipal, parish, state, and federal government officials, who, under the most difficult of conditions, gave eagerly of their time, energy, and thought in the hope of improving the quality and utility of the study results.

1. The Department of Homeland Security now estimates that total federal response costs alone will exceed \$200 billion. This amount does not include the costs incurred by state and local governments, nonprofit and religious organizations, insurance companies, businesses, and homeowners—an amount that is expected to easily exceed federal direct expenditures. These expenditures represent a staggering impact on the U.S. economy (U.S. Government 2005a).
2. Other recent severe flooding events in the New Orleans area include the Great Flood of 1927, Hurricane Betsy in 1965, and Hurricane Camille in 1969.
3. We use the term *diaspora effect* to refer to the difficulty of identifying and quantifying social, economic, or psychological effects among populations so widely distributed in such a variety of cultural contexts.
4. A minor pollution event is defined as a spill involving less than 500 barrels of oil and one which does not reach the shore. Still, the resulting oil spills could be seen from space, spreading throughout the Gulf. No official estimate of total loss is yet available. As of January 20, 2006, only 22 of the 183 damaged pipelines have returned to service. Production of an estimated 396,000 barrels of oil and 1,804 cubic feet of gas would remain shut in. MMS officials further estimated that production of 396,000 barrels of oil and 1,804 cubic feet of gas would remain shut in through August 2006 (MMS 2006).

REFERENCES CITED

- Abraham, Yvonne
2005 Casino Workers Wary of Future. *Boston Globe*, September 10. Electronic document, http://www.boston.com/news/weather/articles/2005/09/10/casino_workers_wary_of_future?mode=PF, accessed September 10.
- Associated Press (AP)
2005 Mississippi Governor Signs Laws Allowing Casinos Devastated by Katrina to Rebuild on Land. *USA Today*, October 17. Electronic document, http://www.usatoday.com/travel/destinations/2005-10-17-mississippi-casinos_x.htm?csp=34, accessed October 17.
- 2006a Airport’s Business Jumps after Hurricane Katrina. *USA Today*, February 15. Electronic document, http://www.usatoday.com/travel/flights/2006-02-15-baton-rouge-airport_x.htm, accessed June 4.
- 2006b Analyst Questions Impact of Katrina Grants on Low-Income in Mississippi. *Picayune, Item*, January 26. Electronic document, <http://www.picayuneitem.com/articles/2006/01/26/news/12poor.prt>, accessed January 26.
- 2006c FEMA Trailer Parks Suspended. *San Diego Union Tribune*, April 6: A6.
- 2006d MDEQ to Receive Water, Sewer Funds. *Clarion Ledger*, January 27. Electronic document, <http://www.clarionledger.com/apps/pbcs.dll/article?AID=/20060127/NEWS0110/601270319/1002>, accessed January 27.
- Berger, Eric
2006 Evacuees to Leave Hotels This Month. *Houston*

- Chronicle, February 8. Electronic document, <http://www.chron.com/disp/story.mpl/special/05/katrina/3630030.html>, accessed June 4.
- Bourne, Joel K., Jr.
2004 Gone with the Water: The Louisiana Bayou, Hardest Working Marsh in America, Is in Big Trouble—with Dire Consequences for Residents, the Nearby City of New Orleans, and Seafood Lovers Everywhere. *National Geographic Magazine*, October. Electronic document, <http://www3.nationalgeographic.com/ngm/0410/feature5/>, accessed June 2, 2006.
- Bureau of Economic Analysis (BEA)
2006 Per Capita Income Growth in 2005 Slows Slightly: State Per Capita Personal Income. Electronic document, http://www.bea.gov/bea/newsrel/spi_highlights.pdf, accessed April 7.
- Campos-Flores, Arian
2005 A New Spice in the Gumbo: Will Latino Day Laborers Locating in New Orleans Change Its Complexion? *Newsweek*, December 5. Electronic document, <http://www.msnbc.msn.com/id/10218343/site/newsweek/>, accessed December 5.
- CBS News
2005 Biloxi Dreams of a Better Future. CBS News, November 21. Electronic document, <http://www.cbsnews.com/stories/2005/11/21/eveningnews/printable1065157.shtml>, accessed November 21.
- Dao, James
2006 In New Orleans, Smaller May Mean Whiter. *New York Times*, January 22. Electronic document, http://www.nytimes.com/2006/01/22/weekinreview/22dao.html?_r=1, accessed January 22.
- Downey, Kirstin
2006 Mortgage Payments Lag in Katrina Zone. *Washington Post*, March 16. Electronic document, http://www.washingtonpost.com/wpdyn/content/article/2006/03/14/AR2006031401613_pf.html, accessed March 16.
- Dyson, Michael E.
2006 Class, Caste, Culture, and Cameras. Cambridge, MA: Perseus Books.
- Easton, Pam
2006 Signs Seeking Workers Undeniable Symbols of Hurricane Recovery. *Daily Comet*, January 28. Electronic document, <http://www.dailycomet.com/apps/pbcs.dll/article?AID=20060128/APN/601280625>, accessed January 28.
- Federal Emergency Management Agency (FEMA)
2006 Louisiana Weekly Housing Update. Electronic document, <http://www.wjla.com/externalwebsite.hrb?website=http://www.fema.gov>, accessed May 9.
- Foong, Keat
2006 Apartment Companies Continue to Wrestle with Devastation, Confusion after Katrina: Chaotic Landscapes Face Those Affected by Disasters, Not to Mention Rebuilding Issues. *Multi-housing News*, January 9. Electronic document, http://www.archlighting.com/multihousing/reports_analysis/feature_display.jsp?vnu_content_id=1001804509, accessed January 9.
- Forliti, Amy
2005 Mayor of New Orleans Announces Layoffs. *Associated Press*, October 04. Electronic document, http://news.yahoo.com/s/ap/20051004/ap_on_re_us/new_orleans&printer=1;ylt=AhcOUBn, accessed October 4.
- Foster, Mary
2006a Judge: FEMA Can Halt Direct Hotel Payments. *Associated Press*, February 13. Electronic document, <http://www.wjla.com/headlines/0206/302360.html>, accessed February 13.
2006b New Orleans Restaurants Starved for Help. *Associated Press*, January 24. Electronic document, http://www.boston.com/news/nation/articles/2006/01/24/new_orleans_restaurants_starved_for_help/, accessed January 25.
- Goodman, Julie
2005 Problems Growing along Coast. *Clarion Ledger*, November 6. Electronic document, <http://www.clarionledger.com/apps/pbcs.dll/article?AID=20051106/NEWS0110/511060344/1263/SPORTS>, accessed November 6.
- Gray, William
2005 U.S. Senate Committee on Environment and Public Works Hearing Statements, 09/28/05. Electronic document, http://epw.senate.gov/hearing_statements.cfm?id=246768, accessed November 1.
- Gunn, Billy
2006 No Welcome Mat for FEMA Trailers: Sewage, Property Value Concerns Cited. *The Town Talk*, January 22. Electronic document, <http://www.thetowntalk.com/apps/pbcs.dll/article?AID=20060122/NEWS01/60122006/1002>, accessed January 22.
- Hammar-Klose, Erika S., and E. Robert Thieler
2001 Coastal Vulnerability to Sea-Level Rise: A Preliminary Database for the G. Atlantic, Pacific and Gulf of Mexico Coasts. Woods Hole, MA: U.S. Geological Survey Digital Data Series 68.
- Hasten, Mike
2006 Hurricane Evacuees Living in Hotels Have HUD Options. *Louisiana Gannett News Service*, January 22. Electronic document, <http://www.dailyworld.com/apps/pbcs.dll/article?AID=20060122/NEWS01/601220323/1002>, accessed January 22.
- Houston Chronicle
2006 Only about Half of the Evacuees in Texas Hotels Seek Extension. *Houston Chronicle*, January 31. Electronic document, <http://www.chron.com/disp/story.mpl/metropolitan/3624033.html>, accessed January 31.
- Impact Assessment, Inc. (IAI)
1990a Analysis of Fiscal Impacts to Local Jurisdictions. Interim Report, 1. Kodiak: State of Alaska, Department of Community and Economic Development, Oiled Mayors Subcommittee of the Alaska Conference of Mayors, City of Kodiak.
1990b Final Report: Economic, Social, and Psychological Impacts of the Exxon Valdez Oil Spill. Kodiak: State of Alaska, Department of Community and Economic Development, Oiled Mayors Subcommittee of the Alaska Conference of Mayors, City of Kodiak.
1990c Public and Private Sector Impacts of the Exxon Valdez Oil Spill. Interim Report, 2. Kodiak: State of Alaska, Department of Community and Economic Development, Oiled Mayors Subcommittee of the Alaska Conference of Mayors, City of Kodiak.
1990d Social and Psychological Impacts of the Exxon Valdez Oil Spill. Interim Report, 3. Kodiak: State of Alaska, Department of Community and Economic Development, Oiled Mayors Subcommittee of the Alaska Conference of Mayors, City of Kodiak.
1991 Final Base Case Analysis: Economic-Demographic, Fiscal and Transportation Impact Assessment of the Proposed High-Level Waste Repository at Yucca Mountain. Las Vegas, NV: Clark County Department of Comprehensive Planning, Nuclear Waste Division, Socioeconomic Impact Assessment of the Proposed High Level Nuclear Waste Repository at Yucca Mountain, Nevada.
1992 Base Case for Social and Risk Related Studies. Las Vegas, NV: Clark County Department of Comprehensive Planning, Nuclear Waste Division, Socioeconomic Impact Assessment of the Proposed High Level Nuclear Waste Repository at Yucca Mountain, Nevada.
2001 Exxon Valdez Oil Spill, Cleanup, and Litigation: A Collection of Social-Impacts Information and Analysis. Final Report, 3: Final Social Factors. U.S. Department of the Interior, Minerals Management Service, Environmental Studies Section, August, 2001. Electronic document, <http://www.mms.gov/alaska/reports/2003andOlderRpts/EVOS/volume3.pdf>, accessed April 10, 2006.
- 2006a Benefits and Burdens of OCS Activities on Selected Communities and Public Institutions. U.S. Department of the Interior, Minerals Management Service, Technical Report. 3,000+ pp. Springfield, VA: National Technical Information Service.
2006b Identification of Communities in Texas, Louisiana, Mississippi, Alabama, and Florida Associated with the Fishing Industry, 1–3. St. Petersburg, FL: National Oceanographic and Atmospheric Administration, National Marine Fisheries Service.
- Jordan, Lara J.
2006 Louisiana Feels Shortchanged by Hurricane-Relief Package. *San Diego Union Tribune*, January 26: A6.

- Judice, Mary
2006 Report: Job Growth in N.O. Flat. *Times-Picayune*, February 23. Electronic document, <http://www.nola.com/business/t-p/index.ssf?base/money-0/114068185895180.xml>, accessed February 23.
- Kaiser Family Foundation (KFF)
2005 Survey of Katrina Evacuees. Kaiser Family Foundation, September 16. Electronic document, <http://www.kff.org/newsmedia/7401.cfm?RenderForPrint=1>, accessed September 30.
- LaRose, Greg
2006 Lenders Reluctant to Start Foreclosures. *New Orleans City Business*, March 6. Electronic document, <http://www.newprleanscitybusiness.com/viewStory.cfm?recID=14915>, accessed March 6.
- Lawder, David
2005 New Orleans Loses 237,200 Jobs to Storms: Survey. *Red Nova*, November 02. Electronic document, <http://www.rednova.com/modules/news/tools.php?tool=print&id=293107>, accessed November 2.
- Levine, Samantha
2006 Texas Officials Call U.S. Hurricane Grant "Inadequate": Lawmakers Say Allocation Ignores Aid for Evacuees. *Houston Chronicle Washington Bureau*, January 26. Electronic document, <http://www.chron.com/disp/story.mpl/special/05/rita/3616206.html>, accessed January 26.
- Lipton, Eric
2005 Residents Fight Shift in Zoning for Gulf Coast. *New York Times*, December 12. Electronic document, <http://www.nytimes.com/2005/12/12/national/nationalspecial/12flood.html?ex=1292043600&en=46a5f4a30c009eb7&ei=5090&partner=rssuserland&emc=rss>, accessed December 12.
- Lipton, Eric, and Ron Nixon
2006 FEMA Shifts Some Gulf Coast Housing Contracts from Big Businesses to Small Ones. *New York Times*, April 8. Electronic document, <http://www.nytimes.com/2006/04/08/washington/08fema.html?ex=1302148800&en=7b8ed684c3837df4&ei=5089&partner=rssyahoo&emc=rss>, accessed April 10.
- Louisiana Sea Grant College Program (LSGCP)
2005 Louisiana Hurricane Recovery Resources: Fisheries. Electronic document, <http://www.laseagrant.org/hurricane/fisheries.htm>, accessed October 11.
- McFadden, Robert D.
2005 New Orleans Begins a Search for Its Dead. *New York Times*, September 4: A1.
- Mehren, Elizabeth
2006 Study: People Displaced by Katrina in New Orleans Were Mostly Black. *Los Angeles Times*, January 27. Electronic document, <http://www.thestate.com/mld/mercurynews/news/nation/13725113.htm>, accessed January 27.
- Minerals Management Service (MMS)
2006 MMS Releases Offshore Facilities Impact Assessment from Hurricanes. *Rigzone*, January 19. Electronic document, http://www.rigzone.com/news/article.asp?a_id=28689, accessed January 20.
- Mississippi Department of Employment Security
2006 Labor Market Data, December 2005. Prepared by Labor Market Information Department, January 26. Electronic document, <http://mdes.ms.gov/wps/PA.1.0.6A/docs/LMI/Publications/Labor%20Market%20Data/labormarketdata.pdf>, accessed January 30.
- Mississippi State University, Sea Grant Program
2005 Marine Resources. Electronic document, <http://msstate.edu/dept/crec/marine.html>, accessed November 28, 2006.
- Mohl, Raymond A.
2003 Globalization, Latinization, and the Nuevo New South. *Journal of American Ethnic History* 22(4):31-66.
- Moreno, Sylvia
2006 After Katrina, Houston Sees Spike in Crime. *Washington Post*, February 6. Electronic document, <http://www.msnbc.msn.com/id/11193135>, accessed February 7.
- National Marine Fisheries Service (NMFS)
2005 NMFS Annual Commercial Landing Statistics. Electronic document, http://www.st.nmfs.gov/pls/webpls/MF_ANNUAL_LANDINGS.RESULTS, accessed November 4.
- National Marine Fisheries Service—National Oceanic and Atmospheric Administration (NMFS—NOAA)
N.d. Habitat Connections: Wetlands, Fisheries and Economics. Part Four: Wetlands, Fisheries, and Economics in the Gulf of Mexico. Electronic document, <http://www.nmfs.noaa.gov/habitat/habitatconservation/publications/habitatconnections/num4.htm>, accessed November 4, 2005.
- Newsom, Michael
2006 By the Beach, by the Book, Condo Boom II: Experts Fear Open-Arms Policy Will Allow Overbuilding. *Sun Herald*, January 1. Electronic document, http://www.hotelonline.com/News/2006_Jan_01/k.B10.1136308873, accessed January 4.
- Norris, Fran, Arthur Murphy, Charlene Baker, and Julia L. Perilla
2004 Postdisaster PTSD over Four Waves of a Panel Study of Mexico's 1999 Flood. *Journal of Traumatic Stress* 17(4):283-292.
- Nossiter, Adam
2006 Louisiana Turns to the Needs of Renters. *New York Times*, March 15. Electronic document, <http://www.nytimes.com/2006/03/15/national/nationalspecial/15rent.html?ex=1300078800&en=91ab289b957cfb72&ei=5088&partner=rssnyt&emc=rss>, accessed March 15.
- Ouroussoff, Nicolai
2005 Katrina's Legacy: Theme Park or Cookie Cutter? *New York Times*, October 18: B1, B8.
- Page, Susan
2005 Evacuees Shun Going Home. *USA Today*, October 14. Electronic document, <http://www.usatoday.com/news/nation/2005-10-13-redcross-poll.x.htm>, accessed October 14.
- Patz, Jonathan, David Campbell-Lenrum, Tracey Holloway, and Jonathan Foley
2005 Impact of Regional Climate Change on Human Health. *Nature* 438(17):310-317.
- Petterson, John S.
1988a Perception vs. Reality of Radiological Impact: The Goiânia Model. *Nuclear News* 31(14):84-90.
1988b The Reality of Perception: Demonstrable Effects of Perceived Risk in Goiânia, Brazil. *Practicing Anthropology* 10(3-4):8-10.
1992 Remedying Fundamental Flaws in the Nation's Civilian Radioactive Waste Management Program. Washington, DC: U.S. Department of Energy, Secretary of Energy Advisory Board Task Force on Civilian Radioactive Waste Management.
- Raines, Ben
2005 Storm Damage Elsewhere Raises Value of Alabama Oysters. *Mobile Press-Register*, September 30, 2005. Electronic document, <http://www.al.com/news/mobileregister/index.ssf?base/news/1128071998122390.xml&coll=3>, accessed July 5, 2006.
- Rappleye, Christine
2006 Troubled Waters. *Southeast Texas Live*, Beaumont Enterprise, January 31. Electronic document, http://www.southeasttexaslive.com/site/news.cfm?newsid=16034070&BRD=2287&PAG=461&dept_id=512588&rfi=6, accessed January 31.
- Reyes, Raul A.
2005 Katrina's Next Exposé: Immigration Woes. *USA Today*, October 14. Electronic document, <http://www.usatoday.com/news/opinion/editorials/2005-10-13-reyes-edit.x.htm>, accessed October 14.
- Rivlin, Gary
2005a After Two Storms, Cities Confront Economic Peril. *New York Times*, October 22, 2005. Electronic document, <http://www.nytimes.com/2005/10/22/national/nationalspecial/22finance.html?ex=1287633600&en=8f809f419845d751&ei=5090&partner=rssuserland&emc=rss>, accessed October 22.
2005b Bright Spot on Gulf as Casinos Rush to Rebuild. *New York Times*, December 14. Electronic document, <http://www.nytimes.com/2005/12/14/business/14casino.html?ex=1292216400&en=fd6a06dc453bdfa9&ei=5089&partner=rssyahoo&emc=rss>, accessed December 14.

- 2006a Patchy Recovery in New Orleans. *New York Times*, April 5: C1.
- 2006b Speculator: Après Le Deluge, Moi. *New York Times*, March 5. Electronic document, <http://www.nytimes.com/2006/03/05/magazine/305speculator.1.html?ei=5070&en=5d5ea99a53f6830e&ex=1145678400&pagewanted=all>, accessed April 20.
- Rodriguez, Lori
2005 Evacuees are First Priority for Public Housing. *Houston Chronicle*, September 9: B4.
- Sayre, Alan
2006 Economist: Drop in Louisiana Unemployment Rate Doesn't Mean a Lot. *AP News/Daily Comet*, January 25. Electronic document, <http://www.dailycomet.com/apps/pbcs.dll/article?AID=/20060125/APN/60125079>, accessed January 26.
- Schwartz, David
2006 Las Vegas Needs to Tread Carefully. *Las Vegas Business Press*, January 25. Electronic document, <http://www.lvbusinesspress.com/articles/2006/01/25/columnists/col02.txt>, accessed January 25.
- Seewer, John
2005 Jobs Now Plentiful in New Orleans. *San Diego Union Tribune*, November 29: E3.
- Sefton, Dru
2005 Housing Options for Storm Victims. *San Diego Union Tribune*, September 18: 11, 17.
- Shinkle, Kurt D., and Roy K. Dokka
2004 Rates of Vertical Displacement at Benchmarks in the Lower Mississippi Valley and the Northern Gulf Coast. Electronic document, <http://www.ngs.noaa.gov/heightmod/NOAANOS/NGSTR50.pdf>, accessed August 10, 2006.
- Simerman, John, Dwight Ott, and Ted Mellnik
2005 Assumptions about Katrina Victims May Be Incorrect, Data Reveal. *Knight Ridder Newspapers*, December 31. Electronic document, <http://www.realcities.com/mld/kwashington/13524715.htm>, accessed January 2, 2006.
- Solet, Kim
2005 Latest Flooding Pushes Many Locals away from Terrebonne for Good. *Houma Today*, October 23. Electronic document, <http://www.houmatoday.com/apps/pbcs.dll/article?AID=/20051023/NEWS/510230333/102>, accessed October 23.
- Stanley, Laura D.
2002 Prodigal Sons and Daughters of Job: Navigating the Moral Landscape of AIDS. Ph.D. dissertation, Department of Anthropology, University of California, San Diego.
- Stobbe, Mike
2006 Louisiana Evacuees Share Hopes, Fears. *Sun Herald*, January 22. Electronic document, <http://www.sunherald.com/mld/mercurynews/news/nation/13685073.htm>, accessed January 22.
- Thomas, Danielle
2006 Small Hotels Face Big Challenges. *WLOX*, January 14. Electronic document, <http://www.wlox.com/Global/story.asp?S=4356971>, accessed January 14.
- Tizon, Thomas Alex, and Doug Smith
2005 Evacuees of Hurricane Katrina Resettle along a Racial Divide. *Los Angeles Times*, December 12. Electronic document, <http://www.latimes.com/news/nationworld/nation/la-na-migration12dec12,0,4750051.full.story?coll=la-home-headlines>, accessed December 12.
- Troxler, Brett
2006a Bush Shoots down Baker Recovery Bill. *Advocate*, January 25. Electronic document, <http://www.2theadvocate.com/news/2230666.html>, accessed January 26.
- 2006b Job Availability Widespread in Louisiana. *Advocate*, January 19. Electronic document, <http://www.2theadvocate.com/news/2226422.html>, accessed January 19.
- U.S. Government
1994 U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Guidelines and Principles for Social Impact Assessment, The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (members, alphabetically, Rabel J. Burdige, Kurt Finsterbusch, William R. Freudenburg, Peter Fricke, Robert Gramling, Arnold Holden, Larry Leistritz, Lynn Llewellyn, John S. Petterson, Richard Stoffle, James Thompson, and C. P. Wolf), May 1994. Electronic document, <http://www.st.nmfs.gov/tm/spo/spo16.pdf>, accessed April 20, 2006.
- 2005a U.S. Department of Homeland Security. Major Management Challenges Facing the Department of Homeland Security: Department of Homeland Security, Office of Inspector General, Office of Audits: OIG-06-14, December 2005. Electronic document, http://www.dhs.gov/interweb/assetlibrary/OIG_06-14.Dec05.pdf, accessed June 4.
- 2005b U.S. Geological Survey. USGS Reports Preliminary Wetland Loss Estimates for Southeastern Louisiana from Hurricanes Katrina and Rita. Electronic document, <http://www.usgs.gov/newsroom/article.asp?ID=1409>, accessed November 15.
- 2006a U.S. Army Corps of Engineers. Performance Evaluation Status and Interim Results, Report 2 of a Series Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System by Interagency Performance Evaluation Task Force. March 10. Electronic document, <https://ipet.wes.army.mil/>, accessed August 10.
- 2006b U.S. Congress. A Failure of Initiative: The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina. February 15. 109th Congress; 2nd Session; Report 000-000. Electronic document, http://katrina.house.gov/full_katrina_report.htm, accessed June 4.
- 2006c U.S. Senate. Hurricane Katrina: A Nation still Unprepared. Report of the Senate Committee on Homeland Security and Governmental Affairs, May 2006.
- 2006d The White House. The Federal Response to Hurricane Katrina: Lessons Learned. The White House, February 23. Electronic document, <http://www.whitehouse.gov/reports/katrina-lessons-learned>, accessed June 4.
- Walsh, Bill
2005 More Bad News at a Bad Time: Subprime Lenders Are Getting Nasty. *Times-Picayune*, December 11. Electronic document, <http://www.nola.com/business/t-p/index.ssf?base/money-0/113428616376920.xml>, accessed December 11.
- Webster, P. J., G. J. Holland, J. A. Curry, and H.-R. Chang
2005 Changes in Tropical Cyclone Number and Intensity in a Warming Environment. *Science* 309:1844-1846.
- Wilemon, Tom
2006a Holloway Eyes Biloxi's Future: Hurray's to Build Two Casinos in Biloxi. *Sun Herald*, January 10. Electronic document, <http://www.hotel-online.com/News/2006.Jan.10/k.BI0.1136914547.html>, accessed January 10.
- 2006b Land Bought for Nugget: Point Cadet Lots Sell for Block Price. *Sun Herald*, January 11. Electronic document, <http://www.hotel-online.com/News/2006.Jan.11/k.BI0.1137003799.html>, accessed January 12.
- Williams, Leslie
2006 Lights in the East: Businesses Opening in Eastern New Orleans Have Plenty of Customers. *Times-Picayune*, February 20. Electronic document, <http://www.nola.com/printer/printer.ssf?base/news-13/114045749686310.xml>, accessed February 20.
- Wulfhorst, Ellen
2005 Gulf Fisheries See Slow Recovery. *Reuters*, October 1. Electronic document, <http://www.biznewsarchive.com/30043-gulf-fisheries-see-slow-recovery.html>, accessed October 2.
- 2006 Hurricane-Area Firms Face Labor Shortage: Study. *Reuters*, April 5. Electronic document, http://news.yahoo.com/s/nm/20060405/us_nm/hurricanes.jobs.dc.1, accessed April 5.
- Yen, Hope
2005 Minority Firms Getting Few Katrina Pacts. *CBS News*, October 4. Electronic document, <http://www.cbsnews.com/stories/2005/10/04/ap/business/mainD8D1CEP80.shtml?CMP=OTC-RSSFeed&source=RSS&attr=Business.D8D1CEP80>, accessed October 10.