

Hurricane Katrina

Gale Student Resources in Context, 2010

Hurricane Katrina

Hurricane Katrina struck the southern coasts of Louisiana, Mississippi, and Alabama on August 29, 2005. After passing over Florida as a Category 1 storm, it grew to a Category 5 over the Gulf of Mexico. By the time it passed over New Orleans, it was a Category 3 hurricane with sustained winds of more than 120 miles per hour. The storm impacted a large stretch of the Gulf Coast, from Grand Isle, Louisiana, to Mobile Bay, Alabama, knocking out electricity, water and sewage, transportation, and communications systems throughout a 90,000-square-mile area.

Katrina was declared the costliest natural disaster in U.S. history, accounting for more than \$60 billion in uninsured losses and some \$150 billion in federal aid. Oil refineries, cargo facilities and fisheries, and New Orleans's tourist industry were severely impacted by the storm. It was also one of the deadliest; casualty estimates have ranged between twelve hundred and eighteen hundred dead, and as many as seven hundred missing. (The record for the deadliest hurricane in U.S. history goes to the Galveston Hurricane of 1900 when between eight thousand and twelve thousand people lost their lives.)

There will never be another Hurricane named Katrina; the same year the hurricane struck, the World Meteorological Organization retired the name Katrina from its registry. Retiring the name of a destructive hurricane is commonplace.

The Storm

Hurricane Katrina was not the most intense storm to hit the Gulf Coast. For example, in 1969, Hurricane Camille, a Category 5 hurricane with sustained winds of up to 190 miles per hour, struck the coast of Mississippi, leveling everything in its path. It was Katrina's size, with hurricane winds extending some 120 miles from the storm center (Camille's winds extended only 60 miles) that produced the hurricane's record-breaking and most devastating effect: storm surge.

Storm surge is a rise in sea level near the shore caused by a combination of a hurricane's high winds and low atmospheric pressure. Wind-driven waves ride on top of this surge. In many of the Atlantic and Gulf states, the coastline is seldom more than 10 feet above mean sea level. Also, the level of surge is determined by the slope of the continental shelf; a shallow slope off the coast means a greater surge will inundate the coastline. These two features combine to make storm surge particularly hazardous in those areas where hurricanes are most likely to strike.

In the case of Katrina, waves as high as 30 feet were observed. In addition to inundating coastline, a storm surge can flood bays and travel up rivers and other low-lying areas. For example, the surge at Bay Saint Louis, Mississippi, measured 28 feet above sea level and traveled up the Pearl River, passing the interstate some five miles inland. Waves that hit the shores of Mississippi and Alabama were observed to be as high as 30 feet and travelled hundreds of yards inland, leveling almost everything in their path. In Mississippi alone, almost two-thirds of the homes in coastal counties were damaged or destroyed beyond

repair.

In New Orleans, the storm surge moved up the Mississippi River, rising up to 14 feet some 10 miles west of the city. However, much of the flooding that occurred is attributed to storm surge traveling up the Mississippi River-Gulf Outlet Canal and Lake Borgne to the east, which overtopped the city's eastern levees by as much as 10 feet. The surge continued to move through the city's many canals and spillways; as the storm moved inland, a wind shift also caused another surge inside Lake Pontchartrain to move northeastward.

New Orleans

By the end of the first day of the storm, some twenty-eight breaches in New Orleans's levees were reported. Most occurred along the 17th Street Canal, London Avenue Canal, and Industrial Canal, which connect the Mississippi River and Lake Pontchartrain to the north. Breaches also occurred along the Intracoastal Waterway to the east. Approximately 80 percent of the city was under as much as 10 feet of water; as many as three-quarters of the city's homes were damaged or destroyed. In spite of a mandatory evacuation ordered by the city's mayor, Ray Nagin, many refused to leave, and by the time the storm had passed, almost one hundred thousand people were left stranded and homeless.

Aftermath

On September 8, President George W. Bush requested \$62 billion for emergency spending on hurricane relief. A month later, the Congressional Budget Office estimated that some \$150 billion would be needed for cleanup, aid, and other projects. Americans would also contribute another \$1.7 billion in donations, mostly through the American Red Cross.

Across the region, some three hundred thousand displaced people were moved to shelters. In New Orleans, tens of thousands were relocated to the Superdome, though many had to be evacuated later due to unsafe and unsanitary conditions there. By October 2005, more than ten thousand pets had also been rescued. The population of the city was decimated as many of the storm's victims were relocated to nearby cities, such as Baton Rouge and Houston. An estimated one-quarter of the city's evacuees moved out of state permanently. As of 2006, the city's population was estimated to be somewhere around 250,000, down from more than 450,000 in 2004.

Hurricane Katrina all but shut down much of the Gulf Coast region's oil refineries, impacting energy prices and supply throughout the United States. The Port of New Orleans, which services some six thousand ships a year, lost 80 percent of its capacity immediately following the storm, and had reached only 50 percent three months later. The region's tourist industry was also taking on huge losses, estimated at \$50 million per day. Many gambling casinos were also shut down, which cost the state of Mississippi as much as \$500,000 in daily tax revenue.

Pollution quickly became a major concern as well. An estimated 6.5 million gallons of crude oil, as well as fuel from cars, boats, gas stations, and households, was spilled into the water ways and coastal regions. Floodwaters also tested positive for E. coli bacteria and heavy metals such as lead, chromium, and arsenic. The coastal marshes, which act as a natural barrier and protect the coastline from tidal surge,

were also destroyed.

Fallout

Hurricane Katrina highlighted the lack of preparedness by local, state, and federal authorities charged with responding to such a disaster. As millions watched floodwaters pour through breached levees, questions arose regarding the design and construction of those levees by the U.S. Army Corps of Engineers and whether many of the thousands of deaths could have been prevented had the levees not failed. Criticism was also directed at Nagin, Louisiana governor Kathleen Blanco, and the federal government for both their lack of preparations and their delayed response. Michael D. Brown, then director of the Federal Emergency Management Agency (FEMA) and charged with overseeing the federal government's response, would eventually resign as its head, amid criticism that the agency's response had been sluggish and uncoordinated, and that it had wasted huge sums of money on no-bid contracts immediately following the disaster.

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